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SOUTHERN
TEXTILE BULLETIN

VOL. 29 CHARLOTTE, N. C., THURSDAY, OCTOBER 8, 1925 NUMBER 6

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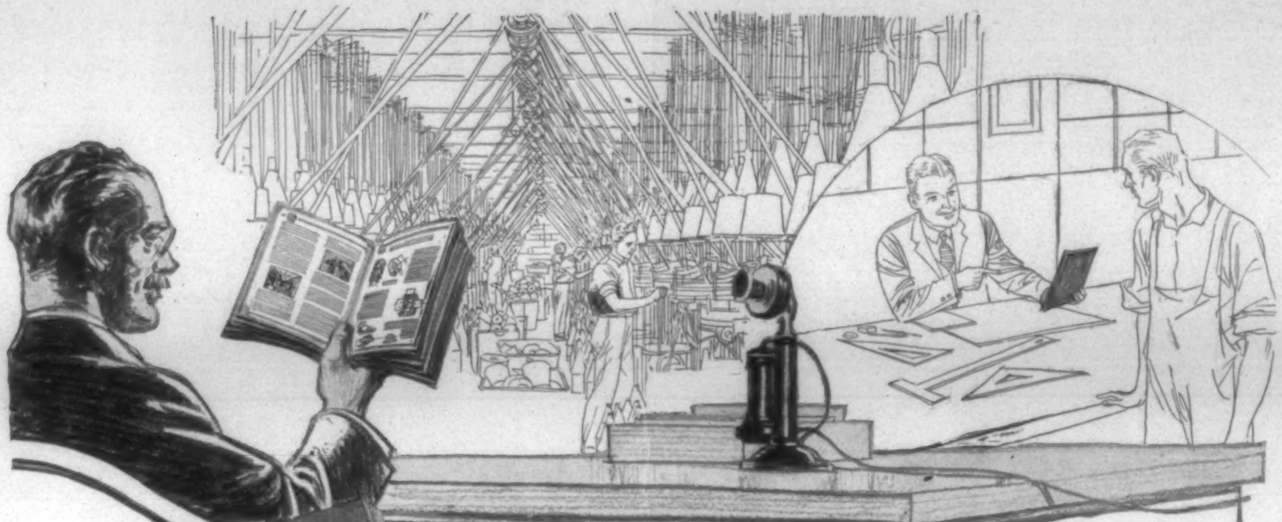

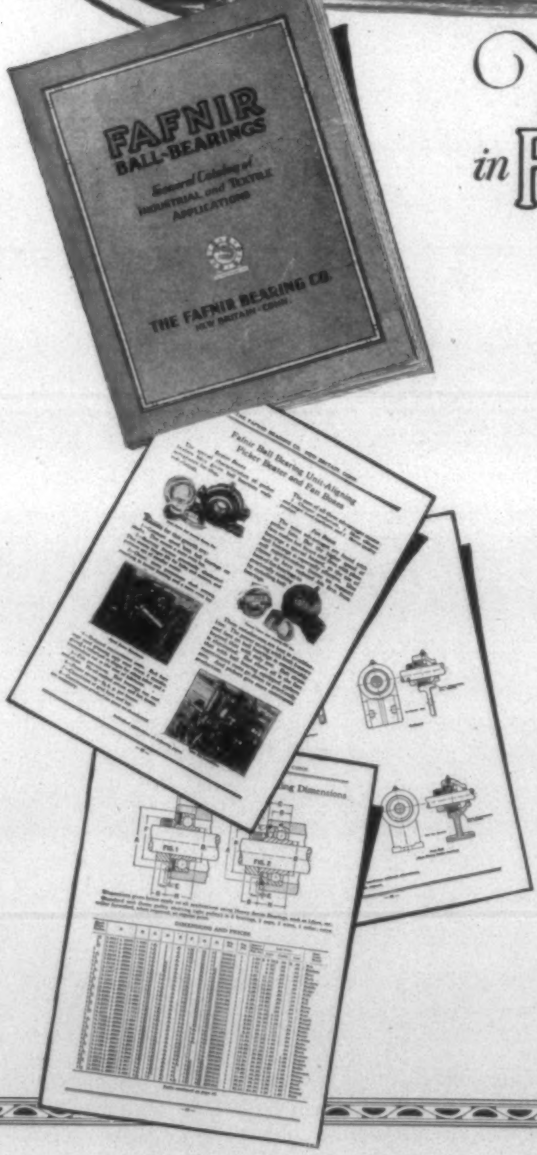

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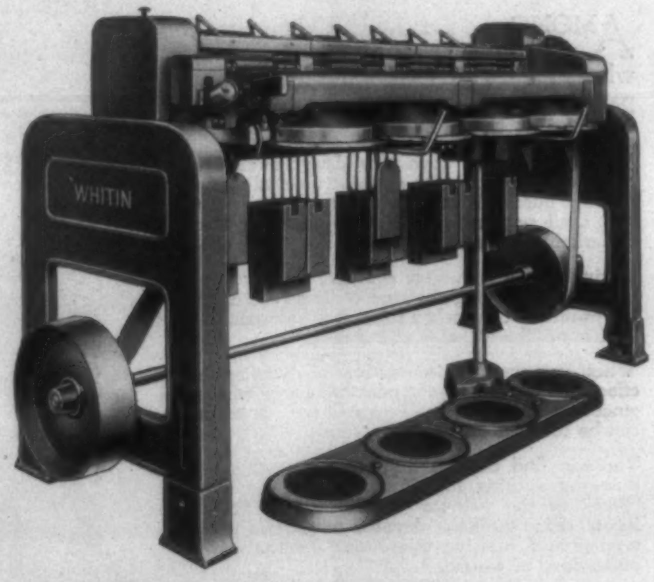

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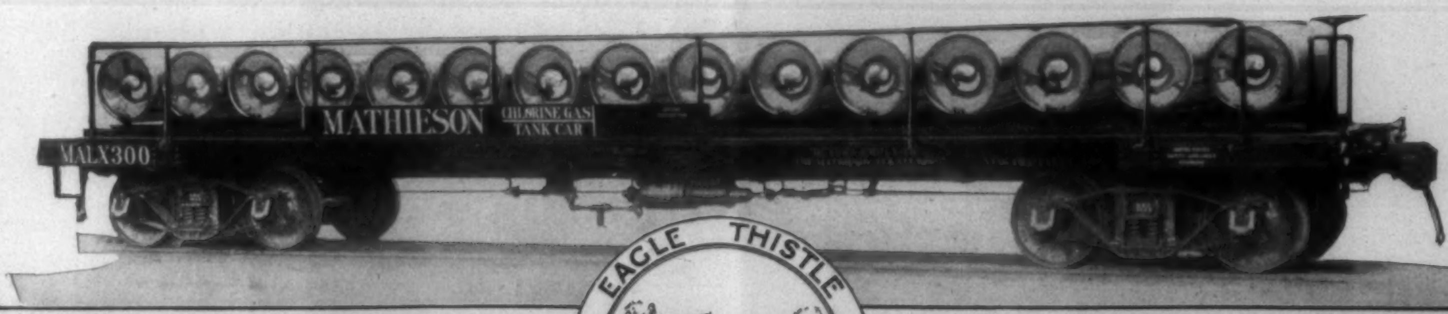

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Rayon and the Textile Industry

Address by Gustavus J. Esselen, Jr., before National Association of Finishers of Cotton Fabrics.

THERE are at the present time four general methods for making artificial silk, each dependent upon a different series of chemical reactions. All however, start with some form of cellulose, convert it into a liquid of about the consistency of honey, force it through very fine orifices in a device called a spinneret and then in some way remove enough of the chemicals so as to reconvert the liquid to a more or less solid conditions.

Since this solid is continuously formed as it emerges from the spinneret it naturally forms a continuous thread. Usually each spinneret has a number of openings so that a single thread as it comes from the spinning machine may have as high as eighty or even more minute filaments.

Nitrocellulose Process.

The first successful artificial silk was invented by Count de Chardonnet in 1884 and was exhibited at the Paris Exposition in 1889. In its essential outline, this same process is still in use today and is the one employed in the manufacture of the Tubize artificial silk in this country.

The raw material is some form of cotton, usually purified cotton linters, which is converted into cellulose nitrate by the action of nitric and sulphuric acids. The product is dissolved in a mixture of alchol and ether and the solution is forced through very fine openings into warm air where the solvents evaporate leaving a continuous filament.

This filament of course is nitrocellulose and as such is highly inflammable and would not be suitable for textile purposes. It therefore has to undergo a process known as denitration which regenerates cellulose and gives the fibre as it is used in the textile industry.

Cuprammonium Process.

The cuprammonium process derives its name from the fact that cellulose in the form of purified cotton is dissolved in a so-called cuprammonium solution, which as its name implies, is an aqueous solution containing both copper and ammonia. The resulting cellulose solution, after being carefully filtered, is forced through spinnerets into a precipating bath composed either sulphuric acid or caustic alkali.

The fibre thus produced may still contain some copper from which it has to be feed. It is possible by modification of this method to produce very fine individual filaments by only partially gelatinizing the solution in the precipitating bath and drawing out mechanically the thread thus produced before it passes into a second bath which completes the solidification. This method is the basis of the one used in the manufacture of the so-called Bemberg silk.

Viscose Process.

Probably the least expensive process of all for the manufacture of artificial silk is the viscose process. As raw material for this, cellulose in the form either of cotton or bleached sulphite pulp may be used. It is converted into so-called soda cellulose by immersion in alkali of approximately 18 per cent strength and after the removal of the excess alkali liquor, the cellulose is broken up into small particles and exposed to the action of carbon disulphide which converts it into a gelatious form soluble in water or weak caustic soda solution.

All of these processes have to be carried out under very careful temperature control. The solution, after careful filtering, is forced through minute openings in suitable spinnerets into a coagulating bath containing acid or various salts which have been found.

As it leaves the coagulating bath it may either be wound on spools or led into so-called spin-pots which revolve at the rate of 5000-6000 revolutions per minute. In either case, the material is subsequently freed from residual sulphur compounds by suitable chemical treatment and bleached if desired. About 85 per cent of the artificial silk produced in this process.

Cellulose Acetate Process.

In the cellulose acetate process, purified cellulose pulp in the form of cotton linters is subjected to the action of acetate acid and acetic anhydride and converted into cellulose acetate which is chemically analogous to cellulose nitrate, except that acetic acid takes the place of the nitric acid in the finished product.

There is this marked difference, however, in that cellulose acetate is no more inflammable than ordinary cotton and possibly even a little less so. The result is that when it is dissolved in suitable solvents and forced through the minute openings in a spinneret in the usual way, the fibre which is produced can be used directly without any subsequent chemical change or purification process.

As will be seen later on, this leads to distinctive properties for this particular fibre. These are two cellulose acetate silks on the market at the present time, Celanese Lustron, and the slight differences which there are between them are due to slight differences in the chemical character of each, which in turn traces back to different methods of treating with acetic acid and acetic anhydride.

"Large Chemical Laboratories."

From this discussion of the various processes for the production of artificial silk, it should not be inferred that the chemistry involved is the only factor of success. To be sure, factories for the manufacture of artificial silk are often referred to as immense chemical laboratories, and such they are, since success is dependent upon unremitting chemical control of each step in the process.

On the other hand, even though the processes are essentially chemical, it would not be possible to turn out a uniform and satisfactory product were it not for mechanical developments of a high order.

Two General Groups.

The artificial silks on the market naturally fall into two general groups. The first consists of the products made by the nitrocellulose, the cuprammonium and the viscose processes. Chemically these are all regenerated cellulose and are quite similar. However, as you undoubtedly know from experience ,they all vary somewhat when used in textiles and unless one is familiar with the differences in properties. these variations may appear quite formidable. In fact, there often is a difference between the same kind of artificial silk made by different companies.

The second group of artificial silks contains the two varieties of cellulose acetate silk, Celanese and Lustron. These are quite distinct chemically from the other group in that they are chemical compounds of cellulose, esters as they are called, rather than celluose itself. In fact some varieties of cellulose acetate artificial silk contains as much as 60 per cent of materials other than cellulose in their chemical make up. As will be seen a little later, this difference in chemical constitution is responsible for a marked difference in property of the silks in these two groups.

Comparative Strengths.

One of the most interesting properties of artificial silks is of course the strength. The following table gives the strength in grams per denier of present day artificial silks and also of natural silk for comparison.

Strength in Grains Per Denier.

	Dry	Wet	% Loss
Nitrocellulose Silk	1.40	0.58	58%
Viscose	1.26	0.48	62%
Cuprammonium	1.15	0.27	76%
Cellulose Acetate (A)	1.02	0.63	38%
Cellulose Acetate (B)	1.08	0.60	44%
Natural Silk	2.5	2.0	20%

These figures bring out one very marked characteristic of artificial silk as distinguished from natural silk and that is the comparatively large loss in strength when the fibre is wet. Cuprammonium silk is the worst in this regard, viscose and nitrocellulose next and acetate silk the best.

On the other hand it should be noted that when dry, nitrocellulose silk is the strongest, viscose next, cuprammonium next and acetate the weakest. Accordingly, although nitrocellulose silk loses 58 per cent of its strength when wet as against only about 40 per cent loss for acetate, the nitrocellulose silk is so much stronger than the acetate when dry that both have about the same strength when wet than viscose and very much stronger than cuprammonium.

As another direct consequence of this effect of moisture and ease of stretching care has to be exercised in the weaving and knitting. With

(Continued on Page 31)

Textile Research in England

TO trace the birth of the British Cotton Industry Research Association, it is necessary to go back to 1916, when a Provisional Committee on Research and Education for the Cotton Industry was formed through the efforts both of the Department of Scientific and Industrial Research and of a number of the leading representatives of the cotton trade itself, says Dr. A. W. Crossley, Director of the British Cotton Industry, in an article in the Empire Mail.

It was realized that the industry, the success of which depends on cheaper and better production, could maintain its supremacy only by the systematic and assiduous application of science to its principles and practice. In order that the fullest possible advantage might be taken of the results of the research, the association was founded.

At the Shirley Institute—a large house standing in 14 acres of ground at Didsbury—the information bureau and library were established in 1920. The bureau abstracts and publishes all relevant current scientific literature for the use of the research staff and for such connected with the industry as are interested. It also summarizes the literature as a guide to investigations, and the results of investigations as a guide to the public. The library bids fair to be one of the most complete of its kind on cotton and for the sciences applied to its study.

Research work began in the laboratories—which occupy, in the same grounds, an extensive single story building built on the most modern lines—when these were opened by the Duke of York early in 1922, and since then a further wing has been added. The laboratories were designed to secure maximum adaptability, all rooms being on a unit basis for size, and the up-to-date equipment is constantly being augmented as new apparatus is devised and the constructed in the Institute's own workshops. The research staff is organized in five departments, each under its own head or heads, all working in close touch with each other.

Measurement and Microscopical Study

Cotton in its raw state is dealt with largely by the botanical departments, and there is such a clear need for methods by which the various growths of cotton may be diagnosed with greater precision than at present that much attention is being paid to the accurate determination of staple length, "fineness" and the other measurable characters of the hair, with a view to defining ultimately what is meant by "good spinning quality." This work, of course, entails much microscopy and the use of statistical methods. Spinning tests on various Empire grown cottons are also arranged, and the results made available for those interested in their cultivation and use.

Much microscopical study is being carried out, too, on the structure of the cotton hair. At the same time, its destruction and liability to attack by mildew are the subjects of investigations which are of great importance to the trade, since losses due to this source can be very appreciable. For such work, a special bacteriological laboratory is used, and the fungi, which flourish on raw cotton and persist right through the various spinning processes, causing spotting and weakening of the final fabric, and those which actually make their attack in the mills when the humidity conditions become favorable, are not known, and measures are being sought for dealing with them in practice.

The causes of faults play a considerable part in the work of the Institute, and hundreds have been examined and their natures elucidated with a view to prevention. Some are found to be due to immature cotton, others to mildew, to oil stains and iron stains (for which remedies have been devised), or to various types of tendering. But the examination of quite a large number leads to the conclusion that the spinners' chief problem is to produce more regular yarn.

Yarn Testing.

In the physics department specially designed apparatus for the determination of the regularity of yarns has been developed to give far more reliable results than any before. Thus, the regularity tester shows up the uneven piece that is produced periodically at the spindle tip, just before each inward run of the carriage in mule spinning. The photographs obtained with the apparatus show, however, that it is quite true that the mule gives a more even yarn than can be spun on the ring frame. Yet another achievement with this tester, in conjunction with new photometric determination of lustre, is that which gives for doubled yarns the correct twist ratio that should be employed to produce the most lustrous yarn, but it also shows how important it is that more even single yarns should be spun.

A good deal of attention is also paid by this department to high draft systems, which have not been favorably received in Lancashire because of the fear that the yarn produced would not be so even as that given by low drafting. But the cost of production would be reduced by the adoption, and by exacting tests carried out it is shown that high drafting does not appreciably alter the regularity of the yarn.

Another very important way in which physics is being applied at the institute is in investigations on certain parts of the spinning machinery and on the loom. A very interesting piece of apparatus to watch is one which subjects a number of pieces of yarn at the same time to oscillating stresses, thus showing up for one thing that sized yarns are less extensible than unsized and more likely to snap suddenly.

Study of Scouring and Bleaching.

Much of the chemical side of the research undertaken at the Institute aims at developing alternative methods for use in the present processes of scouring and bleaching, in an attempt to save the great losses in them now incurred by the industry. In the study of the scouring processes carried on in the large organic chemical laboratory, standard micro-analytical methods have been devised and are in use for dealing with the waxy substances which are removed in the actions in the kier, and a model plant in the technological laboratory allows semi-works'scale experiments to be performed. Tests also have been elaborated for controlling more exactly the bleaching operation, both from the point of view of allowing certain fabrics with colored stripes, for example, to have their backgrounds bleached without affecting the dyes, and also with the object of enabling the bleacher to avoid over-bleaching which means probable tendering of the material. Any such attack, with degradation of the cellulose itself, can be at once detected by viscosity tests when the cotton is dissolved in cuprammonium solution.

Incidentally, another of the standardized analytical methods employed in the chemical laboratories can discriminate by the estimation of their phosphrous contents between an Egyptian and an American cotton, since it has been found that the former contains always about twice as much of this element as the latter. Its nitrogen content, too, is greater, and this is also used as a confirmation if necessary; while yet another method employed is that of comparison of the absorption of methylene blue dye by the different cottons.

One of the most interesting rooms in the laboratories is that devoted to photo-chemical work such as is demanded by studies on the fading of dyes and the sensitivity of cotton to light. Powerful artificial sources of light are installed, and withot spectrographs and other apparatus of the best type for observing and analyzing them it would not be possible to obtain reliable results.

Concentration of Research.

The attention of several departments has often to be directed from different points of view at one specific process. A good example is in the case of mercerization, which has first and foremost a very pronounced botanical significance, for it is most necessary in the fundamental study of it to know exactly how the cotton hair behaves in mercerizing fluids of different strengths—how its convolutions unwind and how it contracts in length and swells. Then, the more circular in section it becomes the more lustre will it produce, and here the botanist's microscope gives way to the physicist's photometer. Further, other mercerizing liquids are sometimes proposed, and their effects are examined in the colloid chemistry and physics department with, a different technique.

The last mentioned section of the laboratories has been the scene of lengthy investigations on the affinity of cotton for moisture and the way in which the presence of water influences a number of technical printing and finishing processes, as well as the conditions of testing the strength and other properties of cotton, such as its resistance to tension. For some of this work, it is necessary to carry out the measurements of single hairs mounted in glass cells all kept for periods in conditions of controlled temperature and humidity, so that in two rooms of this department a number of electrically heated thermostats form most of the apparatus.

Some of the most difficult of the problems and those that come in the sphere of colloid chemistry and concerned with sizing. A model tape frame in the technological laboratory is used for imitating on a small scale the works' practice, but the interpretation of the effects is of a pioneering nature, for very little known as yet of the physical nature of the ingredients of size, such as starch, and its propertiies of flow and penetration into yarn have to be evaluated in altogether new terms. A delicate apparatus is used for determining the strength of dry starch in films, so that the effect of admixtures to it can be ascertained with a fair idea as to their influence in the yarn.

Tests Under Mill Conditions.

The newest wing of the laboratories contains a machinery room and also the testing department, of which by an air-conditioning plant can be maintained at any required temperature and humidity. Here a great number of tests, both with trade testing machines and with others designed by the staff, are constantly in progress on cotton in various states. In conjunction with spinning tests, strength tests are required, and for many purposes hair weights are determined on delicate microbalances. Rigidity and elasticity—properties of the hair which influenced the way in which it behaves in almost every stage of the spinning and manufacturing processes—are studied, too, by torsional methods, giving information which is probably nearer the truth than any so far obtained.

A survey of the work being carried out at the Shirley Institute reveals that a very wide field is being covered. Some sixty pieces of research are in progress, all the result of suggestions by committees or members of the industry and their

(Continued on Page 32)

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As previously indicated the woven structures which fulfilled the conditions for reflecting most light are those which are of a warp or weft sateen order of interlacings. The most typical of these structure are the well-known cotton Venetian and Italian cloths which can be considered the best of all cotton goods mercerized in the piece. As suitable material yarns and builds of fabric are essential features to the development of lustre during mercerization, the following finished cloth particulars of a few standard structures are given:

1—Cotton Italian.

Warp—40's ordinary warp cotton, 105 threads per inch, 6¾ oz. per yard (54 in. by 36 in.)

Weft—40s Egyptian cotton (combed and gassed), 152 picks per inch. Weave: 5—end weft sateen.

2—Cotton Venetian.

Warp—2/70's Egyptian cotton (combed and gassed), 198 threads per inch, 9 3-16 oz. per yard (54 in. —36 in.)

Weft—30's ordinary cotton, 72 picks per inch. Weave: 8-end warp sateen.

3—Cotton Venetian.

Warp — 30's Egyptian cotton (combed and gassed), 148 threads per inch. 7 1-5 oz. per yard (54 in. by 36 in.)

Weft—30's ordinary cotton, 72 picks per inch. Weave: 8-end warp sateen.

4—Cotton Venetian.

Warp—2/70's Egyptian cotton (combed and gassed), 180 threads per inch, 8 7-10 oz. er yard (54 in. by 36 in.)

5—Cotton Venetian (Shadow Stripe)

Warp — 35's Egyptian cotton (combed and gassed), 10 threads right twist, 10 threads left twist, 173 threads per inch, 8½ oz. per yard (54 in. by 3 in.)

Weft—35's ordinary cotton, 71 picks per inch. Weave: 8-end warp sateen.

Effect of Structure.

In noting the makes of these structures it will be observed that those conditions are present which are required to obtain a highly reflective surface. The predominating yarn in each case is composed of fibre which is fine in diameter, able length for combing. Further the fibres of the yarn are as straight cylindrical in shape, and of a suitas spinning conditions will allow. To obtain a clear thread the yarn has also been singed of all projecting fibres. In order to fulfil the remaining condition for producing lustre, namely, close setting of threads or picks, it will be noticed in each example that the number of threads per inch of the Egyptian combed and gassed yarn greatly exceeds the number of the ordinary cotton material. In fact, the material which provides the surface of each cloth is actually set full up or more to what is ascertained to be the actual diameter of the yarn. For example, the diameter of 2/70's cotton yarns is:—$\sqrt{35 \times 840}$—8 per cent.=11157th part of an inch, whereas this number is exceeded in most of the cotton Venetian structures given. These conditions greatly enhance the opportunity of developing lustre, as the greatest reflection of light is obtainable when the cylinders (fibres and yarns) or units of construction are straight and closest together.

Process Preparatory to Mercerizing

Prior to the cotton fabric being mercerized it is subjected to the processes of singeing and a scouring or boiling. The operation of singeing is carried out to rid the surface of the cloth of all loose and projecting fibres, and thus prevent any fibre matting which might develop during mercerization, and would provide conditions which are contrary to those essential in the development of lustre.

The process is performed by means of gas flames or hot plates. In the gas-singeing method, which is mostly employed, and is considered the most effective expeditious and economical, the cloth is passed over one or more gas flames. The fabric to be singed is drawn across a slot in the underside of an exhaust chamber, while the flame of the burner is gently drawn through the cloth by a current or air.

Singeing is carried out with the cloth in an absolutely dry condition, and in some singeing machines this condition is only obtained by passing the material over a cylinder drying machine. In this arrangement, however, the required condition of cloth is obtained by means of the heated cylinder around which the fabric travels. From the heated cylinder the cloth is conducted over or under gas burners by means of guide rollers. Motion is given to the cloth by drawing off rollers alongside which is a spurt pipe for throwing water on to the singed material and eliminating any sparks which happen to be present. A

(Continued on Page 14)

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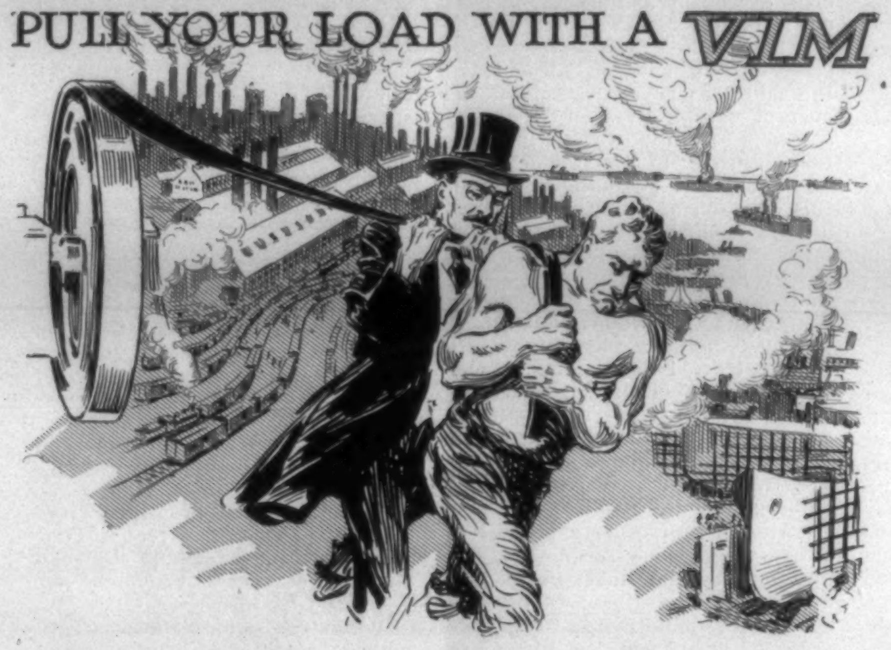
PULL YOUR LOAD WITH A VIM

About Capital and Labor, Top Hats, and a lot of stuff

by Chas. E. Carpenter

SOME things attract because of their extreme deficiencies. Like some breeds of dogs, they are popular and valuable because they are so ugly.

The illustration above is that sort. Don't think for one moment that I am responsible for it. It is the work of a professional advertising artist. It is supposed to represent Capital and Labor pulling the load of industry jointly, with a VIM Leather Belt, the play on the words being the important part, "PULL YOUR LOAD WITH A VIM." Does that pair of gazabos look as if they were pulling with a VIM? Then do you notice the grip Old Man Capital has on the belt? He looks as if he were afraid he would actually do some work, while Mr. Labor has pulled so damned hard that he has lost his shirt. What puzzles me is, why is it that these long-haired artists always portray Capital with a top hat? I suppose it is for the same reason that they always portray angels as blonde cherubs and women. Did you ever see a picture of an angel with whiskers?

I suppose I represent Capital and I am preparing this copy in my shirt sleeves and the shirt in turn is sleeveless, purposely made so for comfort and I have a pair of linen knickers on. I have overalls too and I know where they are. I may or may not have a top hat; I certainly have been compelled to purchase one or two of those pests of prosperity in my time, but I will be darned if I could tell you where it is kept; and I will wager that it is of the vintage of 1900.

Capital is also supposed to wear long-tailed coats, frock, cut, or spike. Tommyrot, the average capitalist has sense and he is comfortable in his dress. Furthermore, when there is a load to carry, he never pushes Labor out in front to take either the lead, or the major portion of the load.

I condemned and forbad the use of this cut, although I authorized payment for the effort and for that reason I was considered a crank. Well, I will admit that either the chap who drew it is, or I am, a crank.

But this illustrates why I prefer to write my own copy and supervise the advertisements personally, rather than delegate that duty to some supposed expert.

Pulling your load with a VIM is a good thought, but the illustration is rotten.

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AND IN EVERY OTHER TEXTILE MANUFACTURING CENTER OF THE WORLD

Oils and Leathers for the Textile Industry

Diversification

An Address by George S. Harris, president of Cotton Manufacturers' Association of Georgia at the Textile Diversification Dinner in Charlotte.

DIVERSIFICATION is a big word of six syllables and when applied to cotton manufacturing, it has often been a bad actor. In fact, we know it to wreck some good men and good mills that had enjoyed enviable reputations before they made its acquaintance. I am reminded of the years ago when woman suffrage was a political issue. A friend now Senator from Alabama, then representative from my District, defined a suffragette as "as old maid who knew that she wanted something and thought it was a vote." Applied to Southern Mills, we do know that we need something and we think it is diversification.

Gambling With Profits.

I often wonder how long we think we can get by with the present method of gambling out our profits in plain goods manufacturing. How many weeks of the past five years has it been possible for the plain goods mill to sell goods and buy cotton to cover at the same time and show a profit on the operation? Many Southern manufacturers seem to be possessed with the idea that their first object is to beat the cotton game, and if they have any time left, they devote it to manufacturing. Some seem to be successful and this forces others into a speculation that should be foreign to cotton manufacturing. If every cotton manufacturer in the Southern States today would resolve to refuse to sell goods when the sale does not show a profit on current cotton, and couple to this a second resolution to hold production adjusted to market demands, we would not be bothering about this question of diversification, and all the trouble and expense it entails. Stating this in another way, if we would think more of co-operation and less of trying to choke out competition we would continue to produce profitably the lines we are now best fitted to produce, provided our particular line is not overspindled for market requirements. I admit that I am visualizing an ideal beyond all hopes. Our industry covers such a wide scope as to be beyond such control.

Cotton manufacturing at best is a most hazardous business. Tremendous capital investments are made in preparation to produce specific lines, and by the time preparations are made, or sooner or later, we are apt to meet style changes sufficient to make this investment entirely useless. Even manufacturers using cotton goods are continuously shifting their requirements, and I say all of this entails sufficient hazard without adding that of a crazy cotton market influenced and controlled often by speculators that wouldn't know a spinning frame from a loom, and probably some of them never saw a bale of cotton.

Present Methods a Farce.

Our methods of trading in cotton goods have at times become a farce the last few years. Prices have ceased to be based on cost, but instead are based on what the goods market will pay or what somebody thinks cotton may sell at sometime. It appears at times that everybody is willing to sell at a price solely for the reason that somebody else will sell at the same price. The end of this is a sad story unless some method is found to correct it. There may be reasons, possibly too many spindles, et cetera, which we will not take time to discuss. The facts are that the cotton manufacturing industry is suffering from the standpoint of profits and in the absence of sufficient co-operation or leadership, diversification is the only thing I know to improve the situation.

On the other hand, to diversify our product merely for the sake of diversifying is apt to prove much more hazardous than the business in which we are now engaged. We can lose money for our stock-holders fast enough with our present methods without getting ourselves all complicated with a lot of new expensive equipment only to have it stopped for want of profitable orders. We have seen this happen many times where mills have shifted at considerable cost only to find they had "jumped from the frying pan into the fire." Having produced well over 100 constructions during the past twelve months in a mill making coarse grey goods by the ton, I can speak from a little experience.

Cost Accounting Necessary.

In this connection, I would caution any mill considering diversification to look well over your cost accounting before getting in very deep. In my study of cotton goods markets, I am convinced that we have, and surely in the South, a lot of mills who do not know their fabric cost. I have seen many sales made in the New York market that indicated without question a lack of adequate cost accounting. This naturally becomes more important

(Continued on Page 32)

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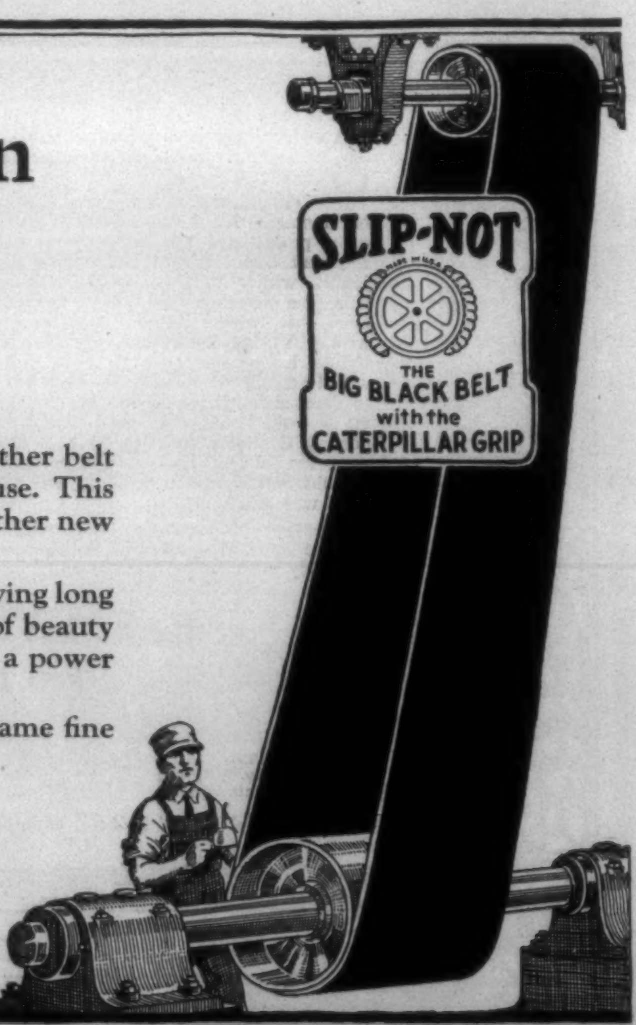

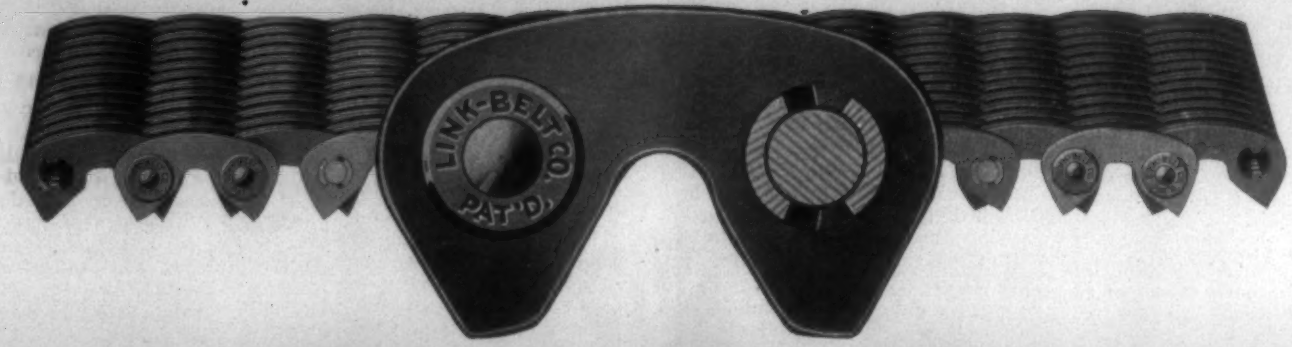

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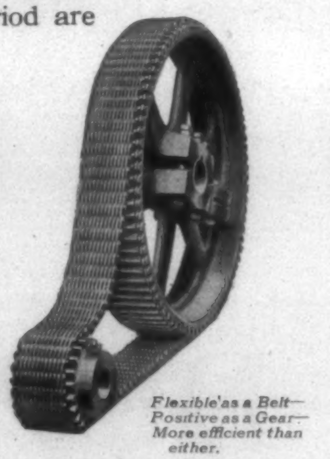

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THIS YEAR LINK-BELT IS FIFTY YEARS OLD

Efficient Silent Chain Drives

Mercerizing Piece Goods

(Continued from Page 10)

trough receives and runs off the water thrown out by the spurt pipe.

By the hot-plate method the cloth is drawn over the surface of one or more heated semi-circular copper plates kept at an even temperature by burning coal. A traverse motion is often attached to this machine, which causes the fabric to bear momentarily on the different parts of the heated copperplate surface.

After singeing the fabric is further prepared for mercerizing by being boiled in a bath or a series of baths containing hot water, scouring solutions and dilute caustic soda. It is scarcely advisable to proceed with the mercerizing for lustre with a solution of caustic soda on a cloth in a dry condition. Although the caustic soda solution of the strength employed for mercerizing rapidly impregnates the cotton fibre, it must be remembered that the time of treatment is very short, and the solution is in a sold condition; hence there is no opportunity for the air to be completely expelled from the interstice of the fibre to permit an even and thorough saturation of the cotton by the caustic soda solution. On account it has been recognized as necessary to boil the cotton fabric before bringing it into contact with the mercerizing agent. Even the passing of the cloth through squeezing rollers while in the liquid will not effect a thorough impregnation of the fibre, by reason of the air still retained in the cells.

The only method of expelling the air and giving the fibre thorough impregnation is by boiling the cloth in suitable solutions and the employment of squeezing rollers. This treatment will also cleanse the material of the ash of the singed fibre, dissolve the size contained in the warp threads, and what other impurities, such as wax and natural coloring matter, which the cotton fibre contains. The way which is distributed over the surface of the cotton fibres is responsibile for cotton goods repelling to some extent water. Should cotton material be mercerized in an uncleansed condition, it would be found that the impurities have a tendency to retard the action of the mercerizing agents. Further, if the impurities are not completely expelled, some sections of the cloth will be likely to absorb and retain more of the alkali than other sections, and consequently be more acted upon. These circumstances are often responsible for uneven absorption of coloring matter and development of lustre.

The wax coating of the cotton fibre is not readily dissolved or removed by hot water; therefore a long and continued treatment with boiling water would be required to effect a thorough wetting-out. In fact, it cannot be considered that boiling water alone is efficient for the effecting of a complete saturation.

Thorough wetting-out is accelerated by boiling the material in a dilute solution of caustic soda or soda ash, and on this account the boiling-out of material prior to mercerizing is performed by passing the cloth through a series of tanks, each containing a suitable solution. The machine employed is after the style of an open-width conditions over and under guide rollers through each of the tanks. Between each of the tanks is a pair of squeezing rollers, which greatly assist in the padding of the solution into the material.

The contents of the first and last series of the tanks are water and scouring solution, while one or more about the middle of the range contains a dilute solution of caustic soda. Each solution is heated according to requirements, the temperature of which in most cases is about boiling point, with the exception of the contents of the last vessel, which is cold water, and serves the purpose of washing off.

The purpose of the boiling-out process prior to mercerizing is to make the cloth as absorbent as possible, so that the mercerizing agent may quickly and thoroughly penetrate all portions of the fibre, and thus bring about an even and complete mercerization.

Mercerizing Ranges.

The mercerizing of piece-goods involves the following processes: (1) The impregnation of the material with the mercerizing agent. (2) The prevention or recovery of shrinkage of the fabric. (3) Washing the mercerizing agent (caustic soda) from the cloth. (4) Neutralization of the alkali. (5) Thorough washing-off. (6) Drying. The machine or machines employed to carry out these processes are usually in the form of a range or sequence of machine set to work in a continuous order.

Padding Machine.

To impregnate the fibre with the mercerizing agent the cloth, while in a wetted condition and a loose state, is immersed—after boiling off—in a caustic soda bath of suitable length. This part of the mercerizing range is known as the saturating box or padding machine. In some cases the vessel containing the solution is jacketed for the purpose of cooling the caustic soda. Guide rollers conduct the cloth through the liquor, and the padding or squeezing is performed by means of nip rollers. The guide rollers possess a rough surface so as to grip the cloth and prevent shrinkage. In some machines the saturating box is divided into three compartments, each containing caustic soda solution which is circulating in the opposite direction to the cloth.

The solution is fed from a spurt pipe situated in front of the bottom nip roller and supplied by a circulating pump from a cistern. The strength and temperature of the solution are adjusted in the cistern and maintained by rapid circulation, the first and second compartments being provided with on overflorw. Under these conditions the strongest liquor melts the cloth at

(Continued on Page 34)

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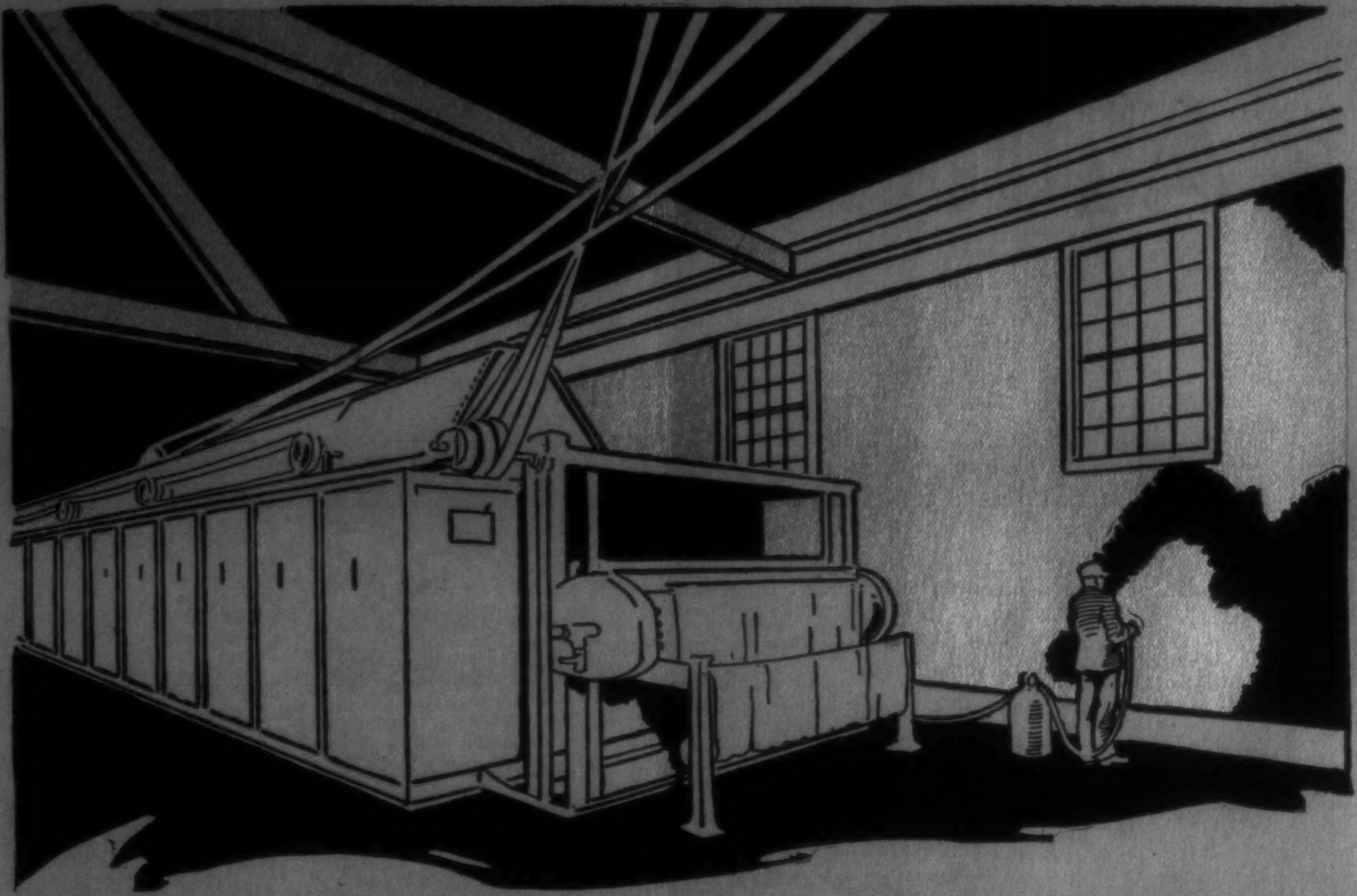

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The Importance of Clearers

(By H. D. Martin)

TOP and bottom clearers need to be closely studied.

Not until recent years has much attention been given to the clearers used in cotton mills.

The clearers and scavenger rolls perform a very important service in our mills and the service which should be performed is of much more importance than realized by many mill men.

With the top clearers, for example. It would seem a very simple matter to tack, glue or fasten a piece of flannel on a piece of board and then let this rest on the top rolls, expecting that the work will be perfectly done. But for want of better knowledge concerning the working of clearers, a great deal of bad work is caused.

The service of the top roll clearer is to gather the loose slivers, waste, specks as they leave the leather covered top rolls. In order to accomplish this, the flannel should not be too fine nor too coarse. Wool flannel is the best kind of cloth to be used. But if the clearer is too heavy and not properly fitted bad work will be the result.

More bad work has been caused by clearers that are too heavy and badly fitted than has ever been realized in years gone by by men who have not studied this matter.

A clearer which is too heavy will act as a break on the rolls. And when using long staple cottons necessitating the operation of the middle roll without any weight thereon, it will be impossible to have a top roll clearer resting on the middle line of top rolls. It will be necessary for the clearer to rest either on the front line and the back line or on the cap bar and just barely touching the middle line.

Where both the middle and back lines of top rolls are self-weighted, the best system is to have the revolving clearers, one for each section of the cap bars.

The traveling core-shaped clearer does not travel fast enough to keep the rolls freed from lint on coarse work. Besides keeping the top rolls freed from lint, the clearers also keep the top rolls surfaces clean and smooth. Other things like dust specks, oil and many foreign things which may become fastened to the roll face are immediately wiped off by the clearers, providing they are properly working.

The men who are doing the best work are those who are very fussy about the operation of their clearers. Unless clearers are picked as often as necessary, it would be better to run without them. Worse injury is done with clearers that are not cared for than to be without them altogether.

When clearers are allowed to go unpicked the accumulation of clearer waste at each end begins to droop between the front and the middle line of top rolls. The result is that each end begins to lick the tapered end of the clearer waste to be spun into the yarn, and frequently this bunch of waste will break away in larger portions and be delivered to the passing end in lumps and slugs. Again, it often happens that the entire bunch of accumulated clearer waste drops onto the passing end which guides it between the bite of the top and bottom front line of rolls. Then this large bunch passes through these rolls, it raises the top roll. This breaks two ends instead of one.

If the clearers are neglected this will go on all of the time, and it makes a vast amount of bad work, besides entailing much needless extra labor to piece up ends.

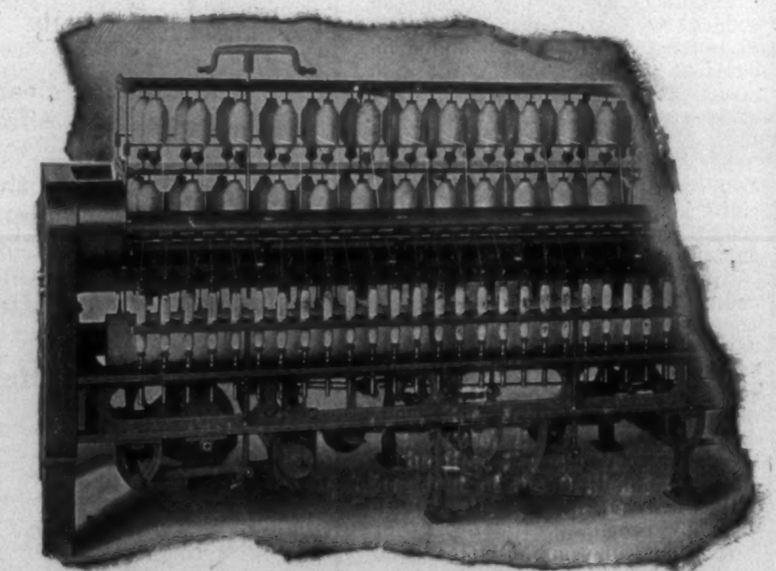
On speeders or spinning frames where there is a large back roll which is self-weighted, some overseers have contrived to overcome the evil of having too much clearer weight resting on the self-weighted middle roll by making the clearer wide enough so that when it is in place it touches a little against the large back roll. Soon as the back roll begins to revolve it has a tendency to lift the back edge of the clearer board, resting against it; this in turn relieves the pressers of the clearer against the middle roll.

Some carders have also found that the work is kept much cleaner by having the solid iron self-weight rolls covered with leather. When leather covered, all the loose lint, together with other foreign wastes, are lifted and carried upward to the clearer much better than the bare iron roll does. Moreover, these leather covered rolls afford a much better cushion for the ends passing beneath them. So important is the work of the clearer that of late years many mills have found it of great advantage to apply under clearers to all first intermediate frames, as well as to have them on combers, drawing frames and slubbers.

But in many mills it has been found that the under clearers do not fit. If they do not fit properly they might as well be taken off. The trouble about not having under clearers fit well is that when the steel rolls are set closer or farther apart, the under clearers which

(Continued on Page 26)

H. & B. AMERICAN MACHINE CO.
Pawtucket, R. I.
Southern Office: 814-816 Atlanta Trust Co. Bldg., Atlanta, Ga.



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The illustration shows the Head End Section of our New Pattern Spinning Frame, with Improved Builder and Pick Motion. Our machines are of Extra Heavy Construction to withstand high speeds without vibration, thus insuring light running and reduced cost in operation.

We build these machines in all gauges, with either Lever Weighted or Self Weighted Top Rolls.

There are many valuable features embodied in our machines that we would be glad to describe.

Illustrated Bulletin with List of Users sent on Request

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THE HART PRODUCTS CORPORATION
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1440 BROADWAY, NEW YORK, N. Y.

Practical Discussions By Practical Men

Your Diameter.

Editor:

What is the diameter of number 50s yarn, and what is the rule for ascertaining other yarn diameters?

Learner.

Idle Loom Cost.

Editor:

I was asked the other day, as to where we were applying the cost of idle looms that were stopped in part of the mill? This has set me to thinking; as I always thought that when a loom is stopped it was like a dead horse and didn't eat any grass, but it seems that I have miscalculated. Now I am obliged to turn this question over to your advisory department for an open consideration of this subject: viz: What costs are connected with part of the looms which may be idle and how to apply this cost, etc ?

Cost Clerk.

Dry or Moist Warps.

Editor:

Is it desirable to slash warps dry as possible, or which is the best way?

Second Hand.

Answer to Ambition.

Editor:

Middle roll should be weighted if ordinary cotton is being used. For 10s to 20s yarn a four pound weight should be used instead of a 2½ or a 3 pound weight on the hook under the creel. If you are using long cotton, middle roll should go unweighted.

Pick.

Answer to Weaver.

Editor:

As Weaver did not state whether he is using steel wire harness or thin flat steel harness. I will give the causes for trouble when using steel harness that is used for a combination harness and drop wire and is broken in the eye, with only one bar supporting the harness or drop wire.

There is a lost motion movement in the harness because it is too slack, or because of a flat place in the treadle roller, or because of a worn place or flat place in the harness cams, or because of the treadle pin is worn out in the back of the treadles. This causes a sudden jerk when starting to change from bottom shed to top and vice-versa causing flat steel harness to break in the center of the eye.

This point may be of some interest to the readers of this paper, as I have seen some good loom fixers stuck on this one thing. If you will see that there is not lost motion whatever in the harness or any sudden jerk and see that the harness has one-half of the pick to change in you will have no trouble with the heddles breaking.

Barton.

Answer to J. N. G.

Editor:

In answer to J. N. G. I would say we have had a lot of machinery to move and had very little trouble with it. The best way, we find, is to have 2 planks made for each side of the frame, making them half the length of the frame and about 5 to 6 inches wide by 4 inches thick. Then we had three wheels put in the planks, coming through about 1 inch and 4 cross pieces to bolt planks together and bolt sampsons to plank. Do this and you can move frames without taking out rolls or roving.

Use a lever and 2 inch blocks to raise frame up and raise one side up 2 inches and then the other side 4 inches. Then roll planks under the frame, raising the 2-inch side high enough to pull planks under the sampsons. Then raise other side and pull planks with rollers in them, bolt cross lines and sampsons and move.

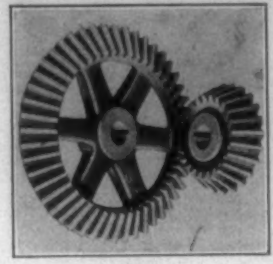
John Mac.

Answer to Troubled Carder.

Editor:

Doubtless you are in trouble on account of two things. First, you do not carry enough stock on hand so as to be away ahead of the card room. The great trouble with many colored goods mills using raw stock, they do not carry enough stock on hand. This is absolutely important. You cannot take dyed stock, especially black, kutch and many other colors, right off of the drying machines, and have it run good. It simply will not run. There are a couple of colored goods mills I know about that operate very successfully. Their work is a marvel of smooth running operations. It runs in these mills better than many white goods mills do. How do they do it? It is done by keeping a liberal supply of raw colored cotton on hand. One of these mills carries around 1,000 bales in stock all of the time.

Your second trouble is that you may not be oiling your raw stock. You cannot have the best of results nowadays without competing with your competition. Raw stock oil spraying improves the operations so much that you should prevail upon your principals to adopt it at once. Use only one per cent of a reliable



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the cleaner which cleans clean with little effort or cost.

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oil. This will greatly improve your black. You must get on the new bus and ride on easy street!

Improvement.

Answer to New Carder.

Editor:

Yes it is true that some good carders are advocating the reversing movement of the top flats and thus ending the carding of the silver with clean top flats instead of ending with-ladened top flats. This system would seem to carry with it a sensible new departure. There are other carders who are advocating having less top flats on our carding machines. The idea is advanced that with less top flats, and revolving them much faster, it would make another great improvement. At any rate the idea is worth trying to see what would be the results. It can easily be tried to prove or disprove the idea.

The reasons for advising this radical change are as follows: The top flats would always be cleaner because as they would revolve faster, they would also be automatically stripped oftener. Flats that revolve faster and are self-stripped oftener would also be much cleaner at all times. In this way the cylinder would pass the stock, along cleaner top flats all of the time. There would be more room for refuse matter to be lodged into the top flats. It is claimed that under the present system the top flats move so slowly that they are always filled with waste. They are immediately loaded soon as they come in contact with the cylinder. At the present speed of the top flats, they make about one revolution per hour. As there are about 43 top flats always in contact with the cylinder, a card having one hundred and ten top flats, will have 43 of the same top flats continuously in contact with the cylinder for nearly one half of an hour. Each flat fills with waste almost as soon as it comes into contact with the cylinder at the back. At this point there is so much space in the empty top flats, and as this is also the end where the cotton is taken into the card, not only the waste matter becomes lodged into the card, but good cotton also lodges with the waste into the top flat. As the top flats are loaded, what is the use of letting them revolve in the same direction of the cylinder for one half of an hour in a loaded condition?

Why not have less flats in contact with the cylinder at all times, revolve them faster, and strip them say four times oftener than we do? If each flat remains into contact with the cylinder one-half of an hour, and the cylinder revolves one hundred and sixty-five R. P. M., the cylinder passes each flat nearly five thousand times. During all of this time the cylinder is endeavoring to throw into this flat waste matters. But as the flats are already so filled right at the start, the good stock passing on the surface of the cylinder is brushed against the waste-ladened top flats for about one-half hour. This old operation prevents the good stock from being well cleaned, and as the good stock brushes against the already waste-filled top flats, instead of ridding itself of motes and other refuse matter, it is likely to unload some of the refuse matter from the top flat and carry some of this waste with it as it is being doffed from the cylinder by the doffer.

If the top flats were operated in the reversed direction the carding of the cotton would end with a cleaned approaching top flat. This gives better waste catching surface to rid the good stock from foreign matter at the last moment before leaving the cylinder. With this new system, the top flats would approach the rear end of the card, and the fresh stock be carded would have more chance to be well carded.

Therefore the theory is that this new system will give better carding. But this remains to be proven and any carder can try this out and find out the ins and outs for himself. It it not difficult to re-arrange the driving mechanism of the carding machine for the purpose of revising the movement of top flats.

New Timer.

Style Show at Mill Meeting

A private style show for members and their guests, the first of the kind the organization has held, will be a new feature of the annual meeting of the ational Association of Cotton Manufacturers, which is to take place at the Copley Plaza hotel in Boston on Wednesday and Thursday, Oct. 14 and 15. This feature, which will probably be one of the most notable exhibits of modern cotton fabrics yet put on in the United States, will be under auspices of the ladies of the Association, and will be held in connection with a dinner dance at the Copley Plaza at 7:30 o'clock on Wednesday evening, Oct. 14.

From 50 to 60 living models will appear, gowned in material all made in the exhibiting mills, all of which are located in the North, and most of which are in New England. The development of cotton fabrics, including rayon, or artificial silk, will be shown in the latest fashions in a most striking manner, and prizes will be awarded. Conde Nast, editor of Vogue, will be the judge. Four silver medals will be presented, one each for the best morning, afternoon and evening gowns, and one for the best ensemble of three dresses. Noted designers in Boston, New York and other cities are now busy making the dresses. The style show committee consists of Mrs. Morgan Butler, chairman; Mrs. Robert Amory, Mrs. Nathaniel F. Ayer, Mrs. John S. Lawrence and Mrs. Russel H. Leonard.

The Hon. Francis Vernon Willey, president of the British Federation of Industries, who is to be the speaker at the annual banquet of the Association on Thursday evening, has arrived in the United States and is now on a tour which has for its chief purpose the bringing more closely together of British and American organized industries. American chambers of commerce are cooperating in this movement enthuiastically.

Roughing Mills
in the hardwood belt of Georgia, North Carolina and Tennessee

Finishing Mills
at Toecane, N. C., and Monticello, Ga.

PRECISION in bobbin-making is one of the notable facts three generations of Jordans have established in the cotton-spinning industry; but not the only one.

Making bobbins to meet a variety of individual specifications is only secondary in its importance. Among our hundreds of customers, mill after mill demands this from us, too.

Our habit of accuracy qualifies us to make the identical bobbin any mill wants, with an exactness which is unvarying. Unvarying!

JORDAN MANUFACTURING COMPANY
Headquarters:
Monticello - - - - - - Georgia

Rayon May Reduce Cotton Output

"TOUGH growers of cotton will not be forced out of business by the rayon industry, the production of cotton may be reduced, its price may be stabilized and reasonable profits for the cotton industry may be established," Dr. M. G. Luft asserted at the rayon meeting held in the Chemists' Club, in connection with the Chemical Exposition, New York.

"Some authorities claim," he continued, "that cotton in the future will be replaced by rayon. However, this expectation has no foundation considering the present stage of the development of this very young industry. Should this ever take place it will not be in a revolutionary way, but by means of slow adaption and chemical evolution in the generations to come."

After giving a thorough description of rayon from the purely chemical and mechanical sides, Dr. Luft, who is chief chemist of the Industrial Fibre Co., said:

"The operations in plain cotton goods in recent years continued far below capacity, averaging three days a week, whereas mills specializing in fancy goods using cotton with rayon are running day and night, due to the attractive effects contributed by the new fiber. These new cotton combinations contain upto 30 per cent of rayon and are used in underwear, shirting, bed spreads, draperies, damask, brocades with iridescent warp, etc.

Uniform Low Price.

"A further stimulus to the application of rayon in a supplementary way with plain and mercerized cotton yarns or with wool and silk is the uniformly low price of the fiber. Its independence from the irregularity in price has done a great deal to increase its demand, because it is not affected by labor or political conditions, by money exchange value and crop, like cotton or cocoon silk. For these reasons it enables the manufacturer to quote his price and figure his profit in advance, this sound price regulation being an important factor in any economic progress.

"Regarding the price a good quality of cotton yarn costs about 80 cents per pound. woolen yarns from $1 up to $1.50 per pound, silk $6 to 8, rayon $1.50 to $2.00, these figures indicating the small difference in price between the new product and cotton or wool.

"The new industry is advancing by leaps and bounds, for instance France is now producing six times as much rayon as she was two years ago. The pioneers thought that by introducing artificial silk they were going to accomplish in the textile industry what Henry Ford has done in the automobile trade, but now we are driving further ahead than they ever expected, or even dreamed.

"The different uses of rayon can be divided into two groups. In all branches of the textile industry, rayon is used independently of other textile fibers, or in a supplementary way. With cotton it is used for underwear, ribbons, moire, plush, any kind of pile fabrics, shoe coverings, cloth gloves, umbrellas and covering wire insulation.

"In Manchester, England, the oldest home of the cotton industry, rayon is being used to a large extent with cotton fabrics, giving them the appearance of knitted goods with jacquard effects. Cotton warp rayon woof is very popular. In combination with cotton it is also used for bedspreads, draperies, elastic webbing, satin, hat and overcoat linings, knitted goods, hair nets, hosiery, laces and embroidery. Being more resistant to friction than silk, it is consequently valuable for linings.

"It is replacing cotton more and more, because the old supply of long staple cotton has been reduced to a large extent, and its price is not different from rayon, which is produced in endless lengths.

"The domestic crop of long staple cotton has gone, probably never to return, the longest staple on the market now being 1 3-16 inch, and the Egyptian long staple has also been reduced.

"Growers of cotton will not be forced out of business by the growth of the rayon industry but it may reduce the production of cotton, stabilize its price, and establish reasonable profits for the cotton industry. Part of the cotton production, namely the short linters, may find its place in the rayon industry as raw material."

"Every year the uses of rayon extend into new fields, for instance, silk hosiery is the largest consumer but increasing amounts are being used also bythe broad silk, cotton and woolen goods mills, where artificial silk yarn are twisted together with other threads to give luster and variety to materials.

Other Growing Outlets.

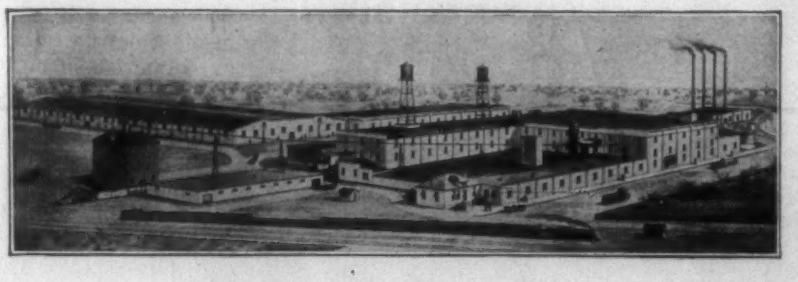
"Rapidly growing in volume is its use in knitted cloth for underwear, dresses and sweaters. It also found entrance in connection with rubberized cloths for surgical dressings, in automobile tire fabrics, for trimming and being a poor conductor of electricity it is used for insulating purposes on electric magnetos and wires.

"Silk always remains a luxury; rayon is within the reach of everyone. It is durable, in many respects is as good or better than cotton or silk. Due to its high elongation, it stretches more when worn for a long period of time but since the modern desire of the fair sex is not durability, as it was in our grandmother's day, but the appearance of the garment, this advantage is disregarded because the fiber brings new effects due to its beautiful gloss and draping qualities.

"In connection with silk, it is used to a large extent in the manufacture
TWORayon may redeeu Cotton Outl
of broad silk, brocades and ribbons. In 1923 at the International Silk Exposition in New York, 80 per cent of all silk exhibits contained artificial silk. Some day in the near future, 80 per cent of all textiie goods will be mixed with rayon. The knit goods industry depends almost entirely today on rayon in the manufacture of sweaters, jumpers, scarfs, shawls and neckties, and to a large extent for hosiery and different kinds of underwear.

In the Weaving Industry.

"In the weaving industry it is used for crepes, mousselines, mixed with silk, cotton or wool. For embroideries, laces, tapestries, wall paper and rugs it is used alone or in combinations. With wool it is mixed for the production of fur imitations,



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COLUMBUS, OHIO

DANIEL H. WALLACE, Southern Agent, Greenville, S. C.

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L. J. CASTILE, Charlotte, N. C.

plush and velvetin. Artificial silk waste is carded, combed and spun with wool or used alone for fringes, tassels, button coverings and felt. The wool industry recently overcame weaving difficulties of mixed yarns consisting of rayon and wool, and now a new field is open to this industry.

"Further use is for the skeletons of gas mantles, electric cords, toys, artificial hairs, for millinery purpurposes, alone or with horse hair and artificial straw, known on the market as 'Visca.' In England the cable manufacutrers are considering the use of rayon for insuation instead of sik and cotton after a study of many years of the insulation properties of rayon. These roughly indicate the various textiles uses of rayon at the present time."

H. A. Ligon Dead.

Spartanburg, S. C.—Dr. H. A. Ligon, 69, local bank president and cotton mill executive, died at the Mary Black clinic at 11:10 o'clock Thursday night after undergoing an operation Sunday morning.

A resident of Spartanburg for 44 years, Dr. Ligon was one of its outstanding and prominent citizens. Not only did he occupy a commanding position in its commercial activity, but he displayed a lively interest in enterprises having as their purpose the promotion of the cultural and educational phases of its life.

In 1902, foreseeing the opportunities that were to come in the cotton manufacturing business, Dr. Ligon organized a company to build the Arcadia Mills, three miles west of the city. On the completion of the plant, he became its president and active operating head, and continued as such until his death.

The original plant was virtually doubled in size and capacity one year ago on the completion of Arcadia Mill No. 2. This second plant stands a few hundred yards west of the original mill and represents an investment of approximately $750,000.

Dr. Ligon enlarged his textile manufacturing activities in 1920 by acquiring control of the Mills Mill at Greenville. Another plant was secured in 1923 when the Gray Mill at Woodruff was bought and its name changed to Mills Mill No. 2.

He entered the banking business in 1906 when the directors of the American National Bank elected him to the presidency to succeed the late J. H. Sloan. Under his administration, the bank has more than kept pace with the growth of Spartanburg and has within six months made extensive improvements to its building.

Harvard's Report on the Distribution of Textiles Being Prepared

Work is well under way on the analysis of the reports of textile sales which are being received daily by the Bureau of Business Research of Harvard University. Many manufacturers and converters, wholesalers, jobbers, and importers of cottons, woolens and worsteds, silks and rugs and carpets already have supplied detailed information. It is desired to give all members of the industry an opportunity to co-operate by sending to the bureau their reports of 1924 sales, which are the basis of the study. Since the significance of the results depends to a great extent on the breadth of experience which is represented, as many and as detailed reports as possible are desired. Figures submitted up to the middle of November will be used in the current analysis.

Textile trade conditions in recent years have served to focus attention on methods of distribution. Dependable information, however, regarding methods of merchandising textiles has not been plentiful. Therefore, the Harvard Bureau of Business Research has undertaken this task of assembling and correlating the obtainable facts. Thus the relative quantities of the various classifications of goods which enter into the several trade and industrial channels may be determined as a basis by which each distributor of textiles may compare his methods with the methods employed by the trade generally. The study is expected to provide also information for use in more effective discussion of merchandising problems by business men in this industry than has been possible in the past.

In addition to and in connection with this survey of textile distribution in 1924, a study is being made of the size and frequency of orders received by several manufacturers during the last four and a half years. From this study the bureau hopes to obtain some measurement of the extent to which hand-to-mouth buying has proceeded since the depression of 1921. While it is the general impression that several classes of textile distributors place orders only upon receipt of orders from their customers, this impression has not been verified by a thoroughgoing statistical survey. Such a statistical survey the bureau hopes to provide.

This research is being made primarily for the purpose of obtaining information for use in teaching in the Graduate School of Business Administration of Harvard University, of which the Bureau of Business Research is an integral part. During the past 13 years the bureau has become the source of considerable reliable information on business subjects. Much of this has been published in book and bulletin form and thus has been made available to other educational institutions and to business men. The firms which co-operate in supplying material for the studies receive without charge copies of the published results. To others the bulletins are available at a nominal price.

It is expected that the bulletin giving the results of this latest undertaking will be ready for publication early in 1926.

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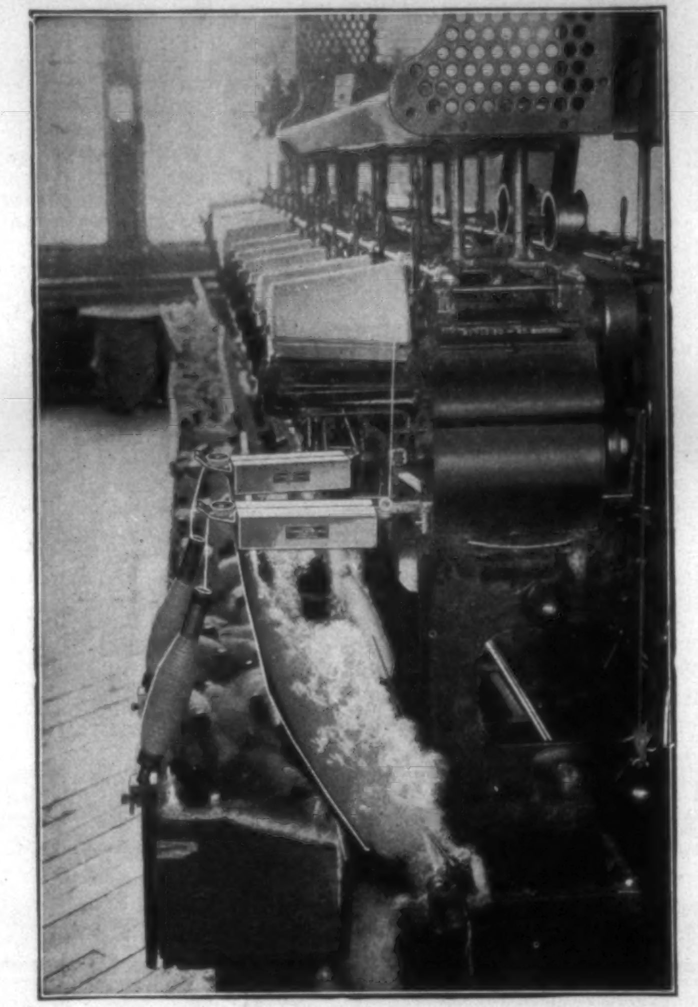

The Truth About Slubs

It does not require inventions to make slubs, but often they are made, and that is another story.

We wish to tell you that the Eclipse Automatic Yarn Cleaner is sure death to slubs. The Eclipse Cleaner not only catches all the slubs but thoroughly removes all the dirt in the yarn.

Many knitting mills and spinning plants realize the extreme value of the Eclipse Cleaner, and are equipping their entire winding capacity with the Eclipse Cleaners. The basic principle of good knittng and weavng is thoroughly clean yarn.

Why make yourself believe you are getting the best results when you can absolutely improve your yarn with the Eclipse Cleaner.

The Eclipse Cleaner is easily attached to your winder. It does not add any additional cost to your winding costs. Upon request we will cheerfully give you a demonstration.

Eclipse Textile Devices, Inc.
Elmira, N. Y.
Makers of
Automatic Yarn Cleaner, Automatic Stop Motion, Yarn Tension Device
Eclipse Van Ness Dyeing Machine

Cotton Mill Processes and Calculations

By D. A. Tompkins.

Copy Revised for Third Edition.

(Continued from Last Week)

Suppose the main shaft to be held stationary, and the differential gear which is fastened to the main shaft, to be slipped out of the differential. When the sun gear makes one revolution, carrying around with it the two differential gears which it contains, the sleeve will make one revolution. When the gear on the main shaft is in place, the contact of the teeth of the gears in the sun wheel with this gear will cause them to revolve once every revolution of the sun wheel, and their revolution will cause one revolution of the sleeve. Therefore each revolution of the sun wheel causes two revolutions of the sleeve, and each revolution of the shaft causes one revolution of the sleeve, both motions being in the same direction.

Let m=rev. of main shaft.
b=rev. of sleeve and bobbin driver.
s=rev. of sun wheel.

From the above $b=m+2s$

$$2s=b-m$$

$$s=\frac{1}{2}(b-m)$$

Example.—Suppose we find that it is necessary for the bobbin driver to make 400 revolutions and the main shaft makes 300 revolutions

$$S=\frac{1}{2}(400-300)=50$$

The proper gear must be put on bottom cone to make sun wheel make 50 revolutions.

In the Holdsworth form of differential the revolution of the sun wheel must be one-half the difference between the revolutions of the main shaft and the revolutions of the sleeve.

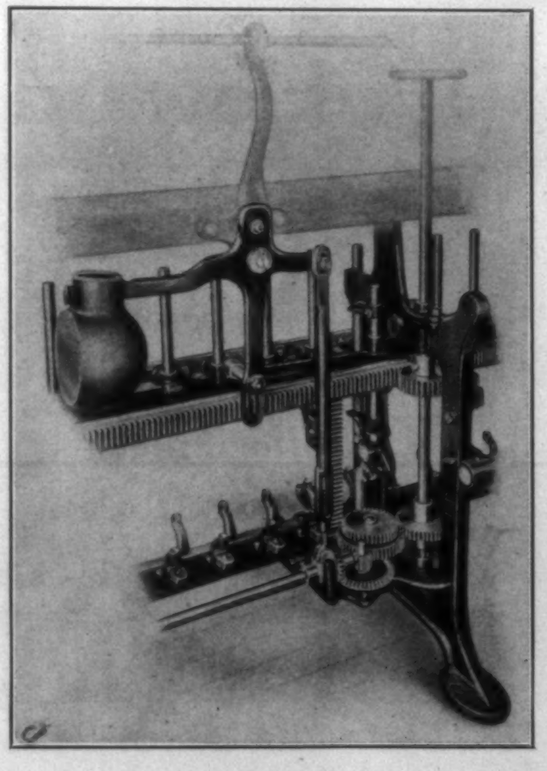

Fig. 28. Cone Belt Wind-Back Device and Stop-Motions

116. Most fly frames are equipped with the full bobbin stop-motion which for the Whitin frame is shown in perspec-

titve in Fig. 28. The shipper rod as shown at the top of figure extends the length of the frame and passes through the eye of a knock-off lever, which is pivoted on roll beam, attached to the knock-off lever is an arm that carries a heavy weight. near the lower part of lever is a knock-off latch that engages with a bracket on one of the sampsons, thus holding the latch in position. The cone rack, which carries the belt guide, has set-screwed to it a knock-off dog.

As the bobbins are filled the rack shifts the belt toward the small end of the top cone, when the bobbins have become full, the knock-off dog on rack is in such a position as to pass under the knock-off latch and raise it, thus allowing the weight to throw the upper end of the knock-off lever to left, so that it strikes a ball fastened to shipper rod. As the lever moves the shipper rod, it throws the driving belt from the tight to the loose pulley.

The fly frame can be set to knock-off at any time. The knock-off dog is simply shifted along rack to such a position that it will pass under the latch and release it when the bobbins are of the desired size.

Calculations.—Draft.

117. Referring to Fig. 26, the draft constant for a 7″x3½″ frame may be calculated by following the rule, that considering the back roll as the driver and omitting the change gear.

Thus:

$$\frac{1\tfrac{1}{8} \text{ x } 56 \text{ x } 100}{8\text{–}8 \text{ x } — \text{ x } 37}$$

This works out 170.27, which is the draft constant.

The draft gear may be found by following the rule of dividing the constant by the draft required; the quotient is the number of teeth in draft gear.

If the desired draft is 4.25 then the draft gear would be 170.27÷4.25, which works out to be 40, the number of teeth in draft gear.

CONTRACTION.

118. The foregoing figures give what is called "theoretical draft." But in practice the twist which is put in the roving shortens the length after it leaves front roll, so that the length wound on bobbin is less than length delivered by front roll. This difference is called "contraction." The amount of it depends mostly upon the amount of twist put in the roving. It cannot with certainty be calculated. It must be determined for each particular case by the man in charge. It is part of his skill. The result of contraction is that roving delivered by a frame weighs more per yard than calculations show. Some of the waste made by the frame would tend to make the roving lighter, but the final result of both tendencies is that ordinary roving weighs from 1 to 4 per cent. heavier than it should by the calculations.

In order, therefore, to have the calculations come out right, the draft must be 1 to 4 per cent. greater than calculations show. This corrected draft is called "actual draft." The draft gear to be used must have 1 to 4 per cent. fewer teeth than calculated.

Twist, or Turns, per Inch.

119. The flyer and spindle revolving with one end of the roving, while front roll holds the other end, produces a twist. If front roll delivers 1 inch per minute and flyer turns 1 time per minute, there will be a twist of 1 per inch. If front roll delivers 10 inches while flyer runs 2 revolutions, the twist will

(Continued on Page 27)

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TEXTILE BULLETIN
Member of Audit Bureau of Circulations
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DAVID CLARK	*Managing Editor*
D. H. HILL, JR.	*Associate Editor*
JUNIUS M. SMITH	*Business Manager*

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Forced Curtailment

WEEK after week has gone by with practically no rains in the Piedmont section of the South and as yet no prospects of rain appear.

Mills operated by the power of the Southern Power Company have been for weeks forced to curtail three days, or half time, and have now been notified of an additional half day off.

We realize that it is difficult to provide for an extreme emergency such as now prevails, but we do think that the Southern Power Company should have emergency steam plants to provide for a great portion of the deficiency that is now indicated.

However, as the necessary emergency plants do not exist and can not be built in a day, there is no help for the present conditions except for those who have idle steam plants of their own.

We know that mill men are irritated and restive when their machinery is idle, but we doubt very seriously if the present idleness of cotton mill machinery is going to cost any mill a cent and it may prove very profitable.

For the past four years there has been a forced period of curtailment during the summer and very few mills have been able to get through without stopping for some period.

The curtailment has come as a result of an accumulation of goods and yarns that has forced prices down and down to the point that for several months prior to stopping there was no profit in manufacturing and often a serious loss from operating.

If we must curtail sometime during the season, it is far better to curtail now and reduce the stocks of goods and then be able to operate at a profit for the remaining months than to operate now and pile up goods that will weigh upon the market and gradually reduce profits to the point that a forced curtailment next summer will be necessary.

It may be a wise providence has taken care of those who are not wise enough to take care of themselves.

It is a happy fact that most of the coarse yarn spinning is in the curtailment zone.

It is certainly a fact that very few of the managers of coarse yarn mills have enough sense to take care of their mills and if "wise providence" was looking for a fit subject to take under its wing, it could find no one any "fitter" than the average manager of a coarse yarn mill.

With this curtailment in effect they have just half as much yarn to sell at below cost (a word that has no meaning to them) and just half as much to deliver to "friend speculators."

This curtailment may save a lot of coarse yarn mills from the efforts of their managers to drive them into bankruptcy.

While we dolefully sing "It Ain't Gona Rain No More," we may catch a vision of the long lost sun of prosperity arising out of the dust.

The Columbus Meeting

THOSE who are fortunate enough attend the meeting of the Southern Textile Association at Columbus, Ga., on October 16th and 17th will be well repaid, because an excellent program has been arranged and much entertainment planned.

The Board of Governors of the Southern Textile Association acted wisely in refusing to discontinue the semi-annual meetings because under the two meeting system they are able to place meetings at various points and thereby get in closer touch with a larger number of mill men.

For the sake of convenience it is advisable to always hold the annual meeting in the Piedmont section, but by placing the semi-annual meeting in a city like Columbus, many Georgia and Alabama men who could not conveniently reach the Piedmont section have an opportunity of attending a meeting.

From reports that we have received we anticipate a very large attendance at Columbus, Ga.

The Cole Trial

THE trial of W. B. Cole, president of the Hannah Pickett Mills, Rockingham, N. C., for the killing fo W. W. Ormond, is nearing its end and as the evidence has been rendered public sentiment has become overwhelmingly in favor of his acquittal.

We have known Mr. Cole for many years and from the beginning were firmly of the opinion that he would never have killed Ormond unless he felt that he was fully justified.

Young Ormond went with Miss Cole for about two years and was considered her suitor.

Due partly to objections of Mr. Cole and partly to her own wishes, she discarded him and he was not man enough to take his dismissal quietly.

He had moved away from Rockingham, but would go back there frequently and would ride back and forth in front of the Cole home blowing his horn every time he passed their house.

Under the delusion that he could force Miss Cole to marry him he began to write letters to Mr. Cole telling him that he had lived as man and wife with Miss Cole for a year. That his statements were absolutely false, is now proved by the testimony of specialists, to whom Miss Cole voluntarily submitted herself for examination, but the statements unnerved Mr. Cole and he almost lost his mind worrying over the slander and what other people would believe.

Ormond also threatened the life of Mr. Cole and Mr. Cole became, according to his testimony, so that he imagined he saw Ormond in every Ford car that he met on the road. It was known that Ormond always carried a pistol in his car.

Mr. Cole sent his lawyers to see Ormond in the town where he was living and Ormond promised to cease annoying him and slandering Miss Cole, but resumed his tactics a short while later.

Although Ormond knew that Mr. Cole always spent Saturday afternoon in his office in the Manufacturers Building in Rockingham, he deliberately drove his car on Saturday afternoon, August 15th, to the front of that building and got out.

Mr. Cole, after months of annoyance and worry over the fact that he knew Ormond was vilely and maliciously slandering his daughter, suddenly saw him get out of a car in front of his office.

He grabbed his pistol and went out and, according to his testimony, Ormond dashed for his car in which he was known to always carry a pistol.

Mr. Cole shot him three times and killed him, and states that he did so to keep Ormond from killing him and being free to continue his slander against Miss Cole.

The killing of a man is a terrible thing, but who is there among us who can appreciate the situation in which Mr. Cole found himself that afternoon?

After being worried sick for months by reason of slanders against his daughter and with his own life threatened, the author of his trouble, deliberately rides up in front of his office. It was like throwing a red rag in the face of a bull.

W. B. Cole is a kindly man and the intensity with which he is loved by all of those around him has been portrayed by their testimony during his trial.

The people in Rockingham have always had entire confidence in Miss Cole, but the entire South now admires the heroic aid that she has given her father in his time of trouble.

It is not for us to say that Bill Cole was justified in killing Ormond, but we do say that he was goaded to desperation and his provocation was very great.

Estimate Cotton Crop At 14,421,000 Bales.

Reports from correspondents of the Commercial-Appeal, Memphis, Tenn., indicate that the condition of the cotton crop October 1 was 54.2 per cent of normal, indicating a yield of 148.2 pounds to the acre. Compared with 144.3 pounds September 16. A final yield last year of 157.4 pounds and a 10-year average yield of 154.0 pounds. The indicated yield of 148.2 pounds per acre points to a crop of 14,421,000 bales, compared with 14,018,000 September 16, and a final yield last year of 13,628,000 bales, 500-pound gross weight equivalent, exclusive of linters.

The increase 403,000 bales seems traceable largely, if not entirely, to the crop turning out better than expected, the report states. Drouth relieved over most of the belt during the previous reporting period has been followed first by a week of very high temperatures, and then by a week of frequent and in many instances, very heavy rainfall.

Up to Octobr 1, drouth in mountain sections of North Carolina, about the western half of South Carolina, and north half of Georgia, had not been relieved. A few light showers occurred, and while they were welcomed they were of no lasting benefit. Rains over the belt during the last half of the period would have been of doubtful benefit in any event; most correspondents say they were not needed. They have lowered the grade of open cotton, delayed picking, and to some extent the ginning, and have multiplied worms to the detriment of small bolls that might have had a chance to open.

It is so late that new growth would probably have been valueless anyway, but worms are getting most of it.

Personal News

S. J. Wilson has been promoted to overseer night carding at the Caswell Cotton Mills, Kinston, N. C.

L. E. Lane, of Boston, Mass., has been appointed superintendent of the Indian Head Mills, Cordova, Ala.

C. E. Davis has resigned as superintendent Maginnis Mill, New Orleans, La.

Howard N. McCartney has resigned as secretary of the Monaghan Mill Y. M. C. A., Greenville, S. C.

J. O. Bishop has been appointed overseer spinning at the Bibb Mills, Porterdale, Ga.

E. Hughes has resigned as overseer spinning at the Hampton Cotton Mills, Hampton, Ga.

C. W. Petit has resigned as superintendent of the Ninety-Six Cotton Mills, Ninety-Six, S. C.

J. W. Derrick has been promoted from second hand to overseer of night weaving at the Greenwood Cotton Mills, Greenwood, S. C.

J. S. Crow has been promoted from night overseer weaving to day overseer weaving at the Greenwood Cotton Mills, Greenwood, S. C.

A. C. Summerville, president of the Magnolia Mills, Charlotte, is seriously ill at a hospital in Philadelphia.

George S. Spofford has been elected president of the Langley group of mills, with plants at Langley, Bath and Anderson, S. C.

A. L. Dilworth has been transferred from night overseer carding to a position in the office at the Caswell Cotton Mills, Kinston, N. C.

J. H. Gossett, overseer of weaving, Republic Cotton Mills No. 3, has returned from a trip to New England States.

S. B. Schwartz has been promoted from assistant superintendent to the position of superintendent, Maginnis Mills, New Orleans, La.

W. J. Jordan has returned to his former position as overseer spinning at the Swift Manufacturing Company, Columbus, Ga.

D. F. Clark has resigned as assistant superintendent and overseer carding at the Columbus Manufacturing Company, Columbus, Ga.

B. B. Gossett, president of the Chadwick-Hoskins Company, Charlotte, sailed from Boston this week on an extended trip through several European countries.

E. A. Terrell, head of the Terrell Machine Company, Charlotte, left New York for England this week, where he will spend about six weeks in the interest of his business. He will visit his British agents, Wm. Tatum, Ltd., of Rochdale, Eng., and George Thomas, of Manchester.

J. G. McNeil, who has been overseer of weaving at the Greenwood Cotton Mills, Greenwood, S. C., for the past ten years, has been promoted to superintendent.

J. C. Brannan has resigned as overseer spinning at the Bibb Mills, Porterdale, Ga., and accepted a similar position at the Hampton Cotton Mills, Porterdale, Ga.

J. E. Batson has resigned as overseer carding at the Meritas Mill to become overseer carding at the Columbus Manufacturing Company, Columbus, Ga.

M. C. Childers has resigned as overseer weaving at the Wennonah Mills, Lexington, N. C., and accepted a similar position at the Vance Cotton Mills, Salisbury, N. C.

R. J. Woods has been promoted from second hand in carding to overseer carding and spinning at the Magrace Mills, Kings Mountain, N. C.

J. C. Cosby, who recently resigned as superintendent of the Texas Cotton Mills, McKinney, Texas, has accepted a position with the Hunter Manufacturing and Commission Co., Greensboro, N. C.

B. R. Dickson has been transferred from superintendent of the Greenwood Cotton Mills, Greenwood, S. C., to a similar position at the Ninety-Six Cotton Mills, Ninety-Six, S. C.

J. C .Thompson has resigned as overseer of the cloth room at the Hartwell Mill No. 2, Toccoa, Ga., and accepted a similar position at the Union-Buffalo Mills, Buffalo, S. C.

B. P. Green, assistant superintendent Thatcher Spinning Mills, and Chas. N. Pursley, assistant superintendent Richmond Spinning Company, Chattanooga, Tenn., have been on a several days' pleasure trip to Atlanta, Ga.

J .L. Rhinehardt has resigned as overseer of carding and spinning at the Phenix Mills, Kings Mountain, N. C., to become overseer carding and spinning and overseer of the silk room at the Dover Mills, Shelby, N. C.

Jesse Brown has resigned as secretary of the Y. M. C. A. at the Ware Shoals Manufacturing Company, Ware Shoals, S. C., and accepted a similar position at the Monaghan Mills Y. M. C. A. at Greenville.

Clifton D. Park until recently sales engineer for the Parks-Cramer Company, humidifier manufacturers, traveling New York, New Jersey, Pennsylvania and the Central States, has severed his connection with that company. He is succeeded in this territory by Leland F. Ross, who is already well known to the textile men of Vermont and Central New York State.

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MILL NEWS ITEMS OF INTEREST

Winchester, Va.—The Arthur C. Jones Woolen Mills are planning to double the capacity of their mill here.

Jackson, Ga.—The Pepperton Cotton Mills have let contract for the complete electrification of the mill, including 750 horsepower motors.

Spartanburg, S. C.—B. C. Fiske announces that a new company has been organized to take over the property of the Spartanburg County Mills, at Camp Wadsworth, and that in the future the concern will be known as the Wadsworth Mills. The plant, equipped with 11,392 spindles, will manufacture cotton yarns, and it is planned later to install looms for weaving.

F. A. Bearden, of Spartanburg, is secretary of the company, and A. M. Hamilton, of Chesnee, superintendent. Directors are B. C. Fiske, Horace L. Bomar, John A. Leathers and Frank Hodges, of Spartanburg, and George Norwood, of Greenville.

Victoria, Tex.—With P. M. Keller, of Belton, and associates pledged to subscribe for $200,000 of the stock of the Victoria Cotton Mills Company, if the people of Victoria will subscribe for the remaining $100,000 of the stock, and Victoria having almost met this condition, a cotton mill is now assured for this city and plans are already being made to have it in operation some time in January.

Mr. Keller, who is at present the manager of the Belton Cotton and Yarns Mills, will manage the Victoria Mill and contemplates locating here December 1 to supervise the construction of the mill.

Durham, N. C.—The Durham Cotton Manufacturing Company, which during the past two years has been producing other fabrics, has recently had sufficient call to turn a limited number of looms onto Malvern 28-inch cheviots. These shirtings will begin coming off about the middle of November, made in blue and gun metal shades. The deliveries are November to March. Joshua L. Baily & Co. are the selling agents.

Charlotte, N. C.—A plant to manufacture cotton handkerchiefs is to be established here by R. W. Eldridge & Co., of Orleans, Vermont. A building on South Church street, formerly occupied by the Charlotte Clothing Manufacturing Company, has been leased by the company and it is planned to have the machinery in operation in about 30 days.

Ray W. Eldridge, president of the company, who has been here to complete arrangements for the plant, will reside here as manager.

The plant in Vermont will be continued, he stated.

About 150 persons will be employed in the mill here.

Rock Hill, S. C.—The Hamilton-Carhartt Cotton Mill Unit No. 2, at Carhartt Station, has been sold to a corporation headed by York Wilson, William Wilson and Alex Long, as reported last week.

At an early date the Carhartt management, it is said, proposes to dispose of the Carhartt Mill, another unit of the Carhartt System, at Elberton, Ga.

The plant at Carhartt will be put into operation, it is said, in the next 30 to 60 days. Many new residences will be built, and, it is said, there will be both day and night shifts. More than 12 months ago this textile plant suspended operations.

The Carhartt Master Cloth Mill No. 1, at Rock Hill, which supplies denim to the overall plants at Atlanta and other places, will be retained by the Carhartt management.

C. L. Cobb, Rock Hill banker, will represent the Carhartt Cotton Mills management in the negotiations for the sale of the Elberton plant, which has been idle for more than a year.

The new corporation now being formed to control the mill at Carhartt will be headed by York Wilson and will be capitalized at $150,000.

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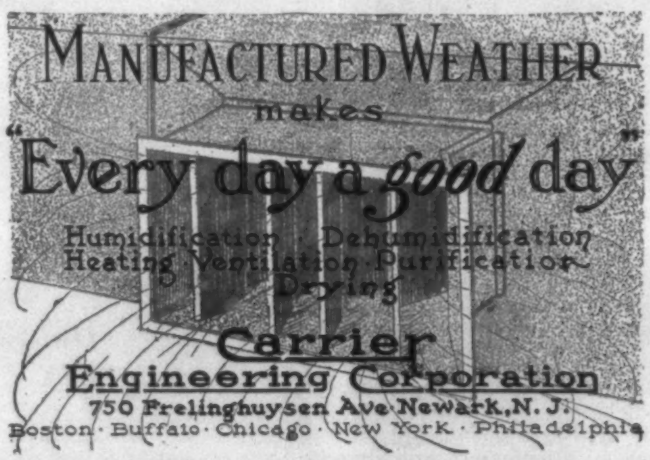
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Largest Landscape Organization in the South

Tifton, Ga.—Robert & Co., architects and engineers, Atlanta, Ga., who are the engineers for the Tifton Cotton Mills, Tifton, Ga., who are building a new extension to house 5,000 additional spindles. Last week they purchased Fairbanks, Morse ball bearing motors to drive these additional spindles.

Balfour, N. C.—The Balfour Mills are installing 8,000 additional spindles and 100 Hopedale high speed looms which they purchased some time ago, as reported. Work of completing the new steam-electric plant is almost completed and will give the mill power to operate 25,000 spindles. J. E. Sirrine & Co., Greenville, are the engineers.

Marble Falls, Tex.—The Marble Falls Textile Company has completed the work of remodeling the building here to be used as a cotton mill, having spent about $30,000 in putting the building in order, and is now ready for installing the textile machinery. A site has been bought for a mill village and architects are at work on plans for 40 homes for the mill employees.

Greenville, S. C.—Work will begin at once on the plant of the Piedmont Plush Mill, on the outskirts of this city, the contract having been awarded to Potter & Shackleford, a Greenville firm. The contract was let from the office of J. E. Sirrine & Co. and stipulates that the plant is to be finished within four months.

The building to be erected by Potter & Shackleford includes a one-story weave shed, 180 by 100 feet; a one-story dye house, 60 by 35 feet, and a boiler room. No contract was let for houses for employees.

Ground was broken for the plant several days ago and actual work will begin at once. The cost of the building, as stipulated in the contract, was not made public.

The Piedmont Plush Mills have been chartered under the laws of South Carolina and will be the first of its kind, it is said, in the South to manufacture plush. The officers include Fred W. Symmes, president; Clifton Corley, vice-president and general manager; C. E. Hatch, secretary. The board of directors includes, in addition to the above, J. E. Sirrine, Aug. W. Smith, B. E. Geer and W. E. Beattie.

Greenville, S. C.—Machinery is now being installed in the recently completed plant of Judson Mill No. 2, and plans call for the operation of a portion of the plant early next month, it was stated. It is not expected that the entire unit will be in operation until near the close of the year.

The old building of the Cyclone Starter Company is being used for this enterprise, while an addition has been constructed also. The greater part of the machinery will be installed during October, and portions of the plant will be tested as soon as possible.

Judson Mill No. 2, which will be used for the manufacture of silk goods, is under the same management as Judson Mills, B. E. Geer being president of both. When the new plant is entirely equipped it will give employment to about 100 persons.

Fifty employees' houses have already been turned over to the company by J. Archie Willis & Co., the builders, it was stated. The houses are of a modern, attractive type and are conveniently grouped about the new plant.

Rossville, Ga.—Plans for the addition to the Peerless Woolen Mills are being prepared by W. H. Sears, engineer-architect, of Chattanooga. The building will be one story, 140x460 feet.

LaGrange, Ga.—It is reported that the Gallaway group of mills will be completely electrified. These plants include the Hillside Cotton Mills, Unity Cotton Mills, Unity Spinning Mills, Elm City Mills and Valley Mills, all of this place, and the Manchester Mills, of Manchester. The power used will be purchased from the Columbus Electric and Power Company. Plans and specifications for the electrification of the Unity and Elm City Mills are now being prepared by Robert & Co., Atlanta. The mills now use steam power.

Committee D-13 Meets in Greenville

Greenville, S. C.—Committee D-13 of the American Society for Testing Materials, met here in morning and afternoon session on Tuesday.

Seventy members of the committee, which is the textile branch of the national society, attended the meeting, and were conducted by members of the Chamber of Commerce on a tour designed to show the complete process of manufacturing goods from the raw cotton. Cotton fields were visited, after which the party was taken to a cotton gin and shown the process of separating the lint from the seed. The group was unable to see the spinning and weaving processes, as all of the mills were closed on account of the power shortage. They visited the Union Bleachery, however, and viewed the bleaching of cloth as carried out at that plant.

Sub-Committees Meet.

Meetings of various sub-committees of Committee D-13 were held Monday night at the Poinsett. The sub-committees which met with their chairman, are as follows: Committee 15, dealing with rayon, A. M. Tenny; 5, dealing with nomenclature, D. E. Dowdy; 6, dealing with tire fabrics; John L. Meade; 13, dealing with narrow fabrics, W. E. Moore, and 2, dealing with fabric test methods .

Reports of these sub-committees were submitted at the general sessions for discussion, and final action will be taken on the various reports at the meeting of the committee next spring.

The reading of four papers, illustrated by slides, featured the meetings Tuesday. A treatise on "Moisture Content," by Professor George Haven, dealing with varying climatic conditions found in the textile industry was read at one of the sessions. Other papers heard by the group are on "Milcrospoic Work," by F. J. Hoxie; one on "Rayon," by W. F. Edwards, and another. "The Identity of the Arghan Fiber," by L. H. Dewey, of the United States Department of Agriculture.

All of these papers dealt with subjects familiar to all textile men. Mill executives, superintendents, and foremen were invited to attend. The lecture on micrscopic work, illustrated with latern slides, dealt with the structure of different fibers and the effect of certain processes.

A banquet given the committee by the Chamber of Commerce at 7:30 closed the meeting of the body. The feature of the evening's rogram was an address on "The American Society for Testing Materials and Its Work," by C. L. Warwick, secretary and treasurer of the organization. W. F. Edwards also spoke on "Fabric Testing and the Standardization of the Textile Industry."

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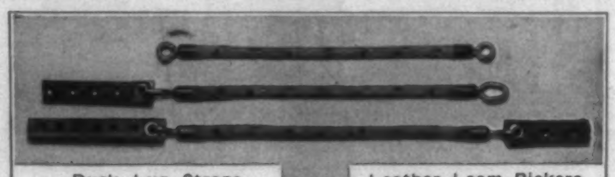
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N. C. Textile Men to Meet At Pinehurst

The winter convention of the North Carolina Cotton Manufacturers' Association will be held November 27-28 at the Carolina Hotel, Pinehurst, the fourth consecutive winter meeting of the body to be held there.

Officers of the association elected during the summer at the Asheville convention are S. F. Patterson, Roanoke Rapids, president; J. M. Gamewell, Lexington; C. G. Hill, Thomasville, and T. H. Webb, Concord, vice-president, and Hunter Marshall, Jr., Charlotte, secretary-treasurer. The executive committee comprises: J. M. Gamewell, chairman; R. M. Miller, Jr., C. E. Hutchison, Robert R. Ray, John L. Patterson, A. J. Draper, Arthur M. Dixon, A. H. Bahnson, J. H. Webb, Bernard M. Cone, E. C. Dwelle, E. C. Barnhardt, W. D. Briggs, C. A. Cannon, L. W. Clark, Sydney P. Cooper, B. B. Gossett, Charles H. Haynes, A. R. Howard, K. P. Lewis, J. A. Long, R. C. Moore, J. A. Moore, A. A. Shuford, John Tillett, T. N. Webb, C. O. Welch and J. Walter Williamson.

Arthur Harris in France.

We received a card last week from Arthur W. Harris, of the Atlanta Reed and Harness Company, who is now on a visit to Europe.

Arthur was in Versailles and states that he is having a wonderful trip.

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27 Years' Experience
Nine Complete Rigs Operating in Every Southern State
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F. S. Terry With Wm. C. Robinson & Sons.

F. S. Terry, of Rockingham, N. C., has accepted a position with Wm. C. Robinson & Sons, of Baltimore, Md., and will sell their special products, such as sizing and finishing compounds and chemicals. Mr. Terry has had considerable experience as a salesman.

Jack Horner Goes With Charlotte Manufacturing Company.

Jack Horner, of Atlanta, Ga., has accepted the position of Georgia, Alabama and Tennessee representative for the Charlotte Manufacturing Company, of Charlotte, N. C., manufacturers of card clothing and reeds.

Jack Horner has traveled the territory mentioned for a number of years and few salesmen have a larger number of friends throughout the mills.

Texas Meeting This Week.

The semi-annual convention of the Texas Textile Association is being held in Denison, Texas, on Friday and Saturday of this week. The program on Friday includes an inspection trip through the Denison Mills and a meeting at the Chamber of Commerce.

A very interesting program, with a number of addresses, has been prepared. The usual technical discussions, which have become an important feature of these meetings, will cover a number of important problems that are met by superintendents and overseers in the routine of their daily work.

Officers of the association are G. C. Dilling, president; D. H. Poole, secretary and treasurer; J. C. Wilson, first vice-president, and H. G. Edmiston, second vice-president.

Further Power Curtailment.

Further power curtailment amounting to half a day a week by consumers using power from the Southern Power Company has just been announced by officials of the company. This will make two and a half days per week that mills and other large users of power must stand idle until there is improvement in the situation. In addition, smaller users of power are being asked to curtail wherever it is possible for them to do so. For the present, cotton gins will continue to curtail only one day per week.

The letter sent the mills by the power company states that the situation is growing worse because of continued lack of rainfall, creating a situation that must be met by further curtailment. Steam plants of the company are being kept at capacity operation, but are not able to supply the normal load.

Curtailment of one day a week was begun by the power company on August 26. Two weeks later it was increased to two days, and now for an indefinite period that can only be ended by heavy rains, 5,000,000 spindles in the Piedmont must be idle two and one-half days per week.

Only nineteen one-hundredths of an inch of rain fell here during September, the month being, with one exception, the driest on record at the Government bureau.

The Importance of Clearers

(Continued from Page 15)

were fitted previous to the setting will not fit between the rolls after the readjustment. It is, therefore, necessary to have extra sets of under clearers to fit well when the rolls are radically changed. In such cases the under clearers must be changed when the roll settings are changed in order to have them properly fitted.

On drawing frames and combing machines there has been a great improvement made. At first, on some of these machines, the ordinary clearer was replaced by the round revolving clearer. This was a decided improvement.

But the latest improvement made would seem to be the last word in clearer improvements. Reference is made to a new clearer in which the flannel is placed into the clearer as an endless belt. This belted or banded clearer revolves, and as fast as it turns over, it is combed clean by a reciprocating combing device. This makes a perfection clearer. The flannel in such clearers always presents to the top rolls a clean surface. There is no possible chance for any waste to be drawn between the rolls and delivered into the work.

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AUTOMATIC SHUTTLES
Try Our New Automatic Shuttles for either cotton or woolen weaving. It is meeting every requirement with entire satisfaction.

Cotton Mill Processes and Calculations

(Continued from Page 21)

be .2. If a twist of .2 per inch. is required, and spindle (and flyer) runs 2 revolutions per minute, the front roll must deliver $2 \div .2 = 10$ inches per minute.

From the above it can be seen that the rule for finding twist per inch is:

Divide the revolutions per minute of the spindles by the length of roving, in inches, delivered by the front roll per minute.

Example.—What twist per inch is being put in roving if the spindles run 1200 revolutions per minute and the front roll delivers 1080 inches per minute?

$1200 \div 1080 = 1.11$ turns per inch.

To find twist constant:

Take into consideration all the gears, with the exception of carrier gears, from the front roll to spindle. Divide the product of the number of teeth in the driving gears by the product of the number of teeth in the driver gears, omitting the change twist gear, and divide the quotient by the circumference in inches of the front roll.

Example: What is twist constant of a 7" x 3½" frame, shown in Fig. 26, with gears,

A=46 H=46
B=60 I=22
D=40

$$\frac{130 \times 46 \times 60 \times 46}{78 \times — \times 40 \times 22} \div 3.5343$$

This works out 68.03, which is twist constant.

To find the change twist gear: Divide the twist constant by the twist per inch required, the quotient is the number of teeth in twist gear.

Example: What is the twist gear to be used when a twist of 2.4 turns per inch is desired—

$68.03 \div 2.4 = 28.3$

A change gear of 28 teeth can be used.

120. To find speed of spindles: Find number of revolutions of spindles to 1 revolution of the main shaft and multiply by the number of revolutions of main shaft.

Example: The main shaft has a speed of 210 r.p.m. and carries a 60-tooth gear driving a 40-tooth gear on spindle-gear shaft, which carries a 46-tooth gear driving a 22-tooth gear on lower end of spindle. Find speed of spindles:

$$\frac{1 \times 60 \times 46}{40 \times 22} = 3.136 \text{ rev. of spindles to 1 rev. of main shaft.}$$

$210 \times 3.136 = 658.56$ R. P. M. of spindles.

121. To find speed of Front Roll: Take into consideration the gears between twist gear on main shaft and gear on end of front roll. Divide the product of the number of teeth in driving gear and the R. P. M. of main shaft, by the product of the driven gears.

Example: If the main shaft has a speed of 360 R. P. M. and the twist gear has 28 teeth, what is speed of front roll?

$$\frac{360 \times 28 \times 78}{46 \times 130} = 131.47 \text{ R. P. M.}$$

122. To find speed of bobbins: Divide the amount of roving wound on the bobbins per minute by the circumference of the bobbin. This result added to the speed of spindle per minute will give the speed of the bobbin per minute.

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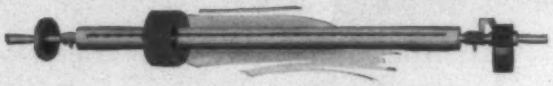

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There is a commercial risk in the ownership of cotton. This risk cannot be eliminated. But it can be shifted. And such a course is generally sound business policy.

Cotton merchants and manufacturers avoid the speculative risk of ownership by "hedging." They buy futures against sales which they have made of cotton or cotton goods and for which they do not then hold the actual cotton. Or they may sell futures against cotton or goods on hand which await a satisfactory market.

Selecting a market in which to hedge is extremely important.

Houston and Galveston are the markets in which the Chicago contract is consummated by delivery. These two ports were chosen because together they constitute the largest spot cotton market in the world. Deliveries may be made there without extra freight and handling costs. Stocks always on hand are sufficient to protect the interests of buyer and seller.

Delivery at Houston or Galveston makes the Chicago contract especially attractive. It is an excellent hedging contract.

For full information write the Cotton Registrar, Chicago Board of Trade. Literature on the world grain market may also be had on request.

Minimum cotton contract 100 bales. Commissions the same as New York and New Orleans. Warehouse capacity 1,500,000 bales.

CHICAGO
BOARD OF TRADE

Example: Find the speed of the bobbin at the finish of a set when the diameter of the full bobbin is 6 inches; the front roll delivers 1080 inches per minute; and the speed of spindles, 650 R. P. M.

$$\frac{1080}{6 \times 3.1416} = 57.29 \text{ R. P. M. of bobbins over spindles.}$$

Therefore, 650 x 57.29=7.07.29 R. P. M. of bobbins at the finish of set.

Traverse or Lay.

123. To find number of layers to the inch in length of bobbin:

Multiply the square root of the hank roving by 10. A multiplier of 13 is sometimes used.

Example: Find the number of layers to inch for 1½ hank roving?

$$\sqrt{1\tfrac{1}{2}} \times 10 = 1.2247 \times 10 = 124 \text{ layers.}$$

To find the traverse or lay constant of a fly frame:

Multiply the twist per inch of the hank roving being made by the number of teeth in the change traverse or lay gear.

Example: Find the traverse constant when a 38-tooth change traverse gear is used for 1½ hank roving.

Twist of 1½ hank roving is 1.47 turns per inch.

$$1.47 \times 38 = 55.86, \text{ traverse constant.}$$

The change traverse gear is found by dividing the traverse constant by the twist per inch in the hank roving required.

Tension Gear.

124. The tension gear is the change gear which through the action of cones and compound regulates the tension of the roving. It moves the cone belt carrier the correct distance as each successive layer is placed on bobbin. Since the size of gear depends on the number of layers required to fill the bobbin, a rule for finding number of layers in build of bobbin will be given:

Multiply the square root of hank roving by 40.

Multiply the result by the difference in diameter of full bobbin and empty bobbin divided by 2.

This rule expressed in formula is as follows:

$$\text{Layers} = (\sqrt{\text{hank}} \times 40) \times \frac{\text{diam. of full bobbin} - \text{diam. of empty bobbin}}{2}$$

Example: Find layers in build of bobbin, on which 1½ hank roving is made. The bobbin is 1⅜" in diameter when empty and 3 9-16" in diameter when full.

$$(\sqrt{1\tfrac{1}{2}} \times 40) \times \left(\frac{3\ 9''16 - 1\tfrac{3}{8}}{2}\right) =$$

$$(1.2247 \times 40) \times (1\ 3\text{-}32) = 53 \text{ layers.}$$

To find Tension Constant: Multiply the twist per inch of the hank roving being made by the number of teeth in the change tension gear.

Example: Find the tension constant when 1½ hank roving is being made with a 46-tooth change tension gear.

Twist of 1½ hank is 1.47 times finish.

$$1.47 \times 46 = 67.62, \text{ tension constant.}$$

The change tension gear is found by dividing this tension constant by the twist per inch in the number of roving required.

Taper Gear.

125. The taper of bobbins is a matter of judgment, but must be enough to keep bobbins from tangling when roughly handled around the mill. The usual amount of taper is pro-

duced when each successive layer of roving on the bobbin consists of one row of roving less than the preceding layer. The correct taper gear is designed by the builders of the machine, and it is seldom necessary to change this gear.

PRODUCTION.

126. By the same method as with other machines, the production is found by multiplying the circumference of front roll in inches by its revolutions per minute. This gives the number of inches delivered per minute. This multiplied by the number of minutes in an hour and the number of hours in a working day, and divided by the number of inches in a yard will give the yards delivered per day. This divided by 840 will give the number of hanks per day. This divided by the "hank roving" (or number of hanks per pound of stock delivered) will give the result required, namely: the number of pounds produced per day per spindle. This is theoretical production if frame should run every minute of the day. But it is impossible for this to occur, because when the bobbins are filled, the frame must be stopped to "doff" (or remove full bobbins and put on empty ones.) Besides this, whenever the roving breaks, (or, technically, there is an "end down,") the frame must be stopped to piece up. Ten per cent is usually allowed for losses of time from all causes. This is a fair average allowance, but in sime cases is hardly sufficient.

127. Expressed as a formula, the theoretical production per spindle per day for a frame making 3 hank roving, with front roll 1⅛ inches in diameter and running 165 r.p.m. would be,

$$\frac{1\frac{1}{8} \times 3.1416 \times 165 \times 60 \times 10}{36 \times 840 \times 3}$$

This works out 3.85 punds per spindle running every minute for 10 hours. Deduct 10 per cent. and the usual rating would be 3.46.

In figuring production of fly frames in general, the allowance for lost time must not be rigidly gauged by any fixed per cent. It will be readily seen that, in very coarse slubbing, the bobbins will fill quicker, and hence need doffing oftener than in fine roving.. About as much actual time is lost in one case as in the other, but the per cent. is greater. Something like 15 minutes per set is right to allow for doffing and other stops. A slubber making .5 hank slubbing would run a set in about an hour, so that stoppage in that case would be 25 per cent., while 6 hank fine roving would run a set in about 5 hours, and a stoppage of 15 minutes per set would figure 5 per cent.

Some difference may be made in production by the number of spindles under the care of one operative. If a mill is so designed that there is a liberal allowance for stoppage, fewer operatives are necessary than for the case where each machine must be pushed to the utmost for every minute of the day in order to keep up with the subsequent machines.

The maximum speed of front roll that would be allowable under certain conditions must always be determined by experiment at the time. Generally speaking, the finer the stock delivered, the slower the speed must be. If a machine runs faster than its maximum, the ends will break down more frequently, and more production will be lost by stoppage than will be gained by the greater delivery of front roll at the fast speed. In the Appendix will be found tables giving what are considered proper speeds under average conditions for various hanks roving.

(Continued next Week)

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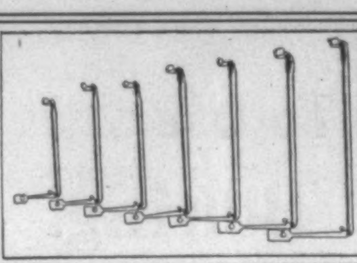

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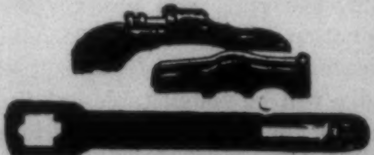

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WRITE FOR SAMPLES

Rayon and the Textile Industry

(Continued from Page 7)

fibres of the first group, that is, nitrocellulose, viscose and cuprammonium, the humidity of the air should not be high, not over 65-70 per cent in any case.

On the other hand acetate silks, probably due to their relative waterproofness, require a higher humidity to keep them from being brittle. For this reason concerns which have become used to silks of the first group sometimes experience trouble when they try acetate silk, but there is no need for this if the fundamental difference between fibres of the two groups is recognized.

Another thing which should be kept in mind in weaving fabrics containing both cotton and artificial silk is that these fibres contract differently in the finishing operations, artificial silk often as much as 8 per cent more length than cotton. As little tension as possible should be used and still have the yarn lay flat.

With Celanese this is particularly important because Celanese, alone of the artificial silks, has a certain amount of elasticity and accordingly as little tension as possible should be used to prevent this elasticity coming into play.

The most common sizes of artificial silk are 150 and 300 denier but it may be obtained as fine as 50 denier and as coarse as 450 denier. In general the finer the denier the higher the price. Owing to its greater strength nitrocellulose silk is particularly adapted to the finer and the Tubize company, which manufactures this silk in this country, specializes in the production of 50 to 80 denier sizes in quantity. Viscose may be had in 80 denier size and Celanese as fine as 45 denier.

Individual Properties.

As already brought out, what appears at first sight as a single thread of artificial silk is really made up of a number of very fine filaments, usually between 16 and 24. When greater softness and pliability are desired, the individual filaments are reduced in size and increased in number. This also increases the covering power but has a tendency to reduce the wearing qualities.

One manufacturer of viscose silk puts out what they call Super Extra yarns consisting of filaments of about 2½ denier each, whereas in their regular yarn the individual filaments are about 6 denier.

The soft and most pliable of the artificial silks is Celanese and accordingly it may be woven into a very pleasing fabric particularly for underwear. Its greater heat insulating properties also make it desirable for this purpose and just at the present time the demand for underwear made of this new fabric is greater than the supply. In other types of fabrics, however, where a certain stiffness is required, viscose is superior.

In dyeing properties artificial silks of the viscose group resemble cotton except that they take up the color very much more readily and accordingly greater pains have to be taken in manipulating in the dye bath if even shades are to be obtained. The handling should also be as careful as with silk to avoid broken filaments.

Cellulose acetate silks are unique in their dyeing properties and dye mch less readily than cotton or silks of the viscose group. It was some time before successful dyeing methods were developed for these acetate silks but both Celanese and Lustron may now be had in any shade.

Owing to the fact that they dye differently from other fibres, one of their most interesting uses is for cross dyed effects with both silk and wool as well as with cotton. Owing, however, to the chemical character of acetate silk mineral acids should not be used with them nor long exposure to warm alkali.

Lustron silk, however, may be used in cotton fabrics which are to be mercerized in the piece provided the temperature of the mercerizing alkali is kept low. Viscose cannot be used in this way as alkali of mercerizing strength tends to disintegrate it.

In finishing Celanese, too hot water should not be used or the luster will be affected. A safe limit is 160° F.

Price Stability Feature.

One very interesting property of artificial silk is it comparative price stability. At present it is only 11½ above the pre-war price as compared with 133 per cent for wool, 100½ for cotton, and 68½ for raw silk. Artificial silk was first manufactured in this country in 1911 when 320,000 pounds were produced or roughly 1000 pounds per day. Last year the production was 39 million pounds or about 130,000 pounds a day, with an annual value of over $80,000,000.

This was about 40 per cent of the world production of artificial silk and it is estimated that the world production of artificial silk is almost twice that natural silk. Stated in this way it seems large but when one realizes that it is only about 1 per cent of the total consumption of cotton or 3 per cent of that of wool, it is seen that there is still plenty of room for expansion in the industry.

Cotton Goods Stocks in Egyptian Bonded Warehouses.

Stocks of cotton goods in the Egyptian bonded warehouses during August advanced 197 bales and cases from the high July level. Although the volume of arrivals continued in the same proportion as in previous months, withdrawals advanced noticeably, indicating that a few merchants have begun to restock in anticipation of active fall business, according to the Textile Division of the Department of Commerce. Unstable Italian currency has recently forced many manufacturers of that country to quote in pounds sterling, a fact which will undoubtedly act as a boon to American plain dyed and printed voiles in this market.

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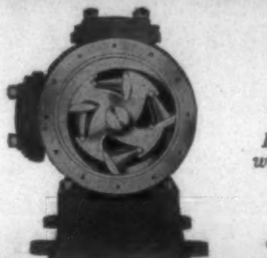

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PAGE FENCE

Cotton Research in England

(Continued from Page 8)

indications of the most important lines of investigation which will best benefit the fourteen hundred firms — practically whole of the trade—which constitute the association. The results are issued to them in memiors, of which about eighty have already appeared, and these are also published in the "Journal" of the Textile Institute each month.

Much of the work could hardly be carried out if it were not for the assistance generously given by mills and works, where the experiments initiated at the Institute can be checked on the practical factory samples can be taken from material actually going through the machinery. In such ways as these the industry directly contributed to the prosecution of research, and also assists the investigators with invaluable practical knowledge of industrial processes.—The Empire Mail.

Diversification

(Continued from Page 12)

with diversification. I would say that the importance of cost accounting in cotton manufacturing varies with the square of the degree of th diversification. The dangers of trouble are manifold as we flirt with the idea. Fortunately, modern accountants today who quickly and easily give us fabric cost and cost control to enable us to predetermine within a very close degree of accuracy, cost of any and all constructions. It is one thing to operate a simple mill without adequate cost accounting, but a very difficult matter as we complicate our loom lay-out with various numbers, and specially style constructions that move in comparatively small quantities. There s no doubt but that our industry in the South needs to study this thought and study it well. We are ready to take the development and need it, but unless intelligently handled, it means more losses.

I would suggest as a means to an end that some SSothern point be developed as a cotton goods trading center. The New Befford Manufacturer has a very great advantage over the Charlotte or Greenville manufacutrer in merchandising style goods. I do not see why all of this trading should necessarily be confined always to New York. Bring the market South and a very important step will have been taken to make diversification possible.

Southern Spinners' Bulletin

The weekly bulletin of the Southern Yarn Spinners Association says:

"Market conditions have been quiet for the past week. In spite of the easing off in the price of cotton, yarn prices have shown a considerable stiffening, and some numbers have advanced as much as 1½ cents. Spinners are reported to have sold their nearby production at satisfactory figures. A deadlock however exists between the buyer and spinner on future contracts.

"The figures of the last Government report have encouraged buyers to believe that a lower level of prices will prevail later, on, and because of this they are not making forward commitments.

"The curtailment due to the drouth still continues. Nearby deliveries are difficult to secure.

"Indications point to a materially better market within the next few weeks."

U. S. Yarn Imports Show Decline

The United States annually purchases a considerable amount of yarns abroad, but the bulk of its domestic production of all kinds of yarns is consumed in this country, exports of yarns, other than cotton, being negligible, according to the Textile Division, Department of Commerce. United States imports of all classes of yarns during 1924 aggregated 17,521,000 pounds valued at $16,578,000 against 30,362,000 pounds with a value of $27,657,000 in 1923, the decline in question including all classes of yarns. During the first six months of 1925, receipts of foreign yarns into the United States totaled 10,612,000 pounds worth $9,745,000.

Receipts of foreign rayon yarns during the first half of 1925 exceeded those for the full year, 1924, by 40 per cent, the increase being attributed principally to the inability of American rayon manufacturers to supply the demand. Producers are booked for several months ahead, and consumers are forced to import and pay premiums in the open market for deliveries.

The advance in the price of raw jute is probably the most important factor in the drop in imports of this commodity during the current year, inasmuch as a similar tendency to decrease is apparent in imports of other jute manufactures. Imports of wool and mohair yarns are relatively unimportant in comparison with the total mill consumption, and probably include a high proportion of novelty or specialty lines, the demand for which would fluctuate with style trends and the margins between domestic and foreign prices. It is therefore rather difficult to explain the falling off in imports of wool and mohair yarns.

Statistics of the imports entered for consumption into the United States, including both entries for immediate consumption and withdrawals from warehouse for consumption during the calendar year, 1924, show a total of 3,943,564 pounds valued at $4,687,379, including 268,592 pounds of yarn not bleached, dyed, colored, combed, or piled, with a value of $192,634 and 3,674,972 pounds of bleached, dyed, colored, combed, or plied yarns, worth $4,494,743. Almost half of these imports are in counts above 90s.

The United Kingdom supplied the bulk of the 1924 imports of yarns being credited with 91 per cent of the total quantity of cotton yarns, 99 per cent of the jute yarns, 76 per cent of the flax, hemp, and ramie yarns, 99 per cent of the mohair

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But, Mr. Mill Man, suppose that a barrel of scrubbing powder cost one thousand dollars. It is likely that the man who pays the bills and the man who is responsible for keeping the floors clean and in good condition (and general cleanliness throughout the Mill) would consider more carefully these factors, and thoroughly test out the powder he adopts. He would order according to specifications and insist upon maximum results at minimum cost per unit area.

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yarns, 30 per cent of the wool yarns, and 20 per cent of the rayon yarns. During the first half of 1925, Great Britain furnished about the same proportion of the cotton yarn imports as in 1924, and a considerably larger percentage of the wool and mohair yarns, but its share of rayon-yarn imports declined to 6 per cent.

In 1924, the Netherlands was the principal source of the imports of rayon yarns followed by the United Kingdom, Belguim, Germany, Switzerland, and Italy in the order named. During the first six months of the current year, Italy outdistanced all its competitors and sent 987,000 pounds of rayon yarns, or 41 per cent of the total imports to the United States. Germany ranked second, while the Netherlands fell back to third place. France and Switzerland dominate the import trade in spun silk or schappe silk yarns, the share of other countries being comparatively small. The greater proportion of the coir yarn entering the United States comes from British India.

United States exports of cotton yarns during 1924 amounted to 13,673,509 pounds valued at $7,423,967 compared with 12,181384 pounds with a value of $6,632,672 in 1923. During the first half of 1925, shipments of cotton yarns abroad aggregated 11,504,352 pounds valued at $6,175,719—only 2,000,000 pounds less than the total for the whole of 1924.

South America affords the principal export outlet for American cotton yarns, having taken 10,353,337 pounds in 1924 and 8,818,781 pounds in the first six months of the current year. Argentina continues to be the United States best customer for cotton yarns, over 50 per cent of the exports having been sent to that country in 1924 and the first half of 1925. A large share of the export trade with Argentina is in yarns for weaving duck.

U. S. Shipments of Cotton Cloth to Its Noncontiguous Territories.

United States shipments of cotton cloth to its noncontiguous territories—Alaska, Hawaii, and Porto Rico—during August totaled 2,000,000 square yards valued at $400,000, a sharp decline from the July shipments which amounted to 5,000.000 square yards worth $900,000, according to the Textile Division of the Department of Commerce. Comparative figures for August, 1924 are 3,000,000 square yards and $600,000. The decrease in the August figures was evident in the case of both Hawaii and Porto Rico, particularly in shipments of piece goods, while the shipments to Alaska showed a considerable increase over those for July.

Irish Wool Exports.

Exports of wool from the Irish Free State 1924 amounted to 18,281,400 pounds valued at $4,481,000. Overseas countries took 2,982,000 pounds valued at $644,000, according to advices received by the Department of Commerce from Consul H. M. Collins. The United States was the most important customers, taking 1,832,600 pounds worth $454,913.

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Mercerizing Piece Goods

(Continued from Page 14)

the third dip, and at this point is saturated at full strength. By means of jacketing the saturating boxes or the cistern, or in some cases both, with a coil through which cold water circulates, the caustic-soda solution is maintained at a low temperature. The process is better conducted in the cold, as the heat possesses a retarding action. In mercerizing it is essential that the strength and temperature of the caustic soda solution should be reasonably constant so as to obtain uniform results.

The mercerizing action of caustic soda is somewhat rapid, since it requires only a few minutes for its completion. The length of time required to mercerize a cotton fabric depends upon the thickness of the material and the penetrating power of the alkali. Lengthening the time of saturation does not increase the mercerizing effect—in fact, too long a contact of the fibre with the caustic soda is to be avoided, since there is a danger of damage to the fibre. Consequently in mercerizing for lustre it is necessary to obviate any displacement of fibre by preventing the shrinkage and by washing off the caustic soda almost immediately after the material has been thoroughly impregnated with the mercerizing solution. The mechanical prevention of the shrinkage of the cotton cloth, or the recovery of such shrinkage, is obtained by the section of the mercerizing range known as the tenterer, which takes the cloth directly from the last nip rollers of the saturating box.

Prevention of Shrinkage Essential

As the prevention of shrinkage of the fibre in mercerizing is the secret of the development of a high degree of lustre, the tensioning or stretching of the cloth at this period is a most important factor. In the case of a warp surface cloth as instanced in a cotton Venetian, it is evident that the tension must be applied to prevent any shrinkage in length or warp. Shrinkage in width or weft would not influence the fibres of warp which provide the surface of the cloth, beyond bringing them closer together, a feature which would enhance the lustrous properties of the fabric. It can be claimed in piece mercerization that lustre is developed — especially in cloths where one material predominates—only on one series of threads. A further instance is provided in the weft sateen-faced cloth known as the cotton Italian. To develop a highly lustrous surface in this structure it will be essential, during tentering, to hold out the cloth in width, and thus prevent the fibres of the weft from shrinking. Consequently the tension or stretching during tentering is applied in accordance with the structure of the cloth. Weft-faced structures will require stretching in width, whilst in warp-faced goods the tension will be applied in a longitudinal direction.

Washing and Neutralizing.

While tentering is taking place, the cotton fibre has undergone an aleration in physical structure and chemical composition. The fibres

Look Over Your Spindles Now And Be Prepared

Get 8 to 10% more yarn on your bobbins by equipping your spindles with our Patented Clutch.

Don't run your spindles with worn out whorls cut in by bands, which changes the speed of your spindles, therefore making uneven yarn.

Let us change your whorls on spindles, repoint and restraighten same, and save you money.

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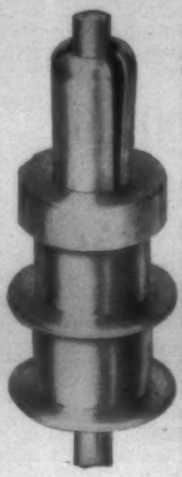

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which form the surface of the cloth can be stated to be cylindrical in shape—a necessary feature in the development of lustre—which must be maintained. It is a well-known fact that the cotton fibre, while under the influence of caustic soda, will shrink and curl immediately tension is relaxed. Consequently before the fabric is released from the tenter the strength of the caustic soda retained in the cloth, must be reduced as much as possible.

Further, in the interests of economic working, the alkali, if possible, must be recovered. The first washing takes place while the cloth is on the tenter. Spurt or sprinkling pipes are situated at intervals for spraying water on to the texture to wash off to some extent the caustic soda, and to weaken that which is retained in the fabric. From the tentering machine the cloth in a partly washed-off condition travels forward to the next section of the range, known as the washing and neutralizating section. The fabric is severely squeezed on leaving the tenter, and fed through the three tanks which usually form the washing machine. In the first tank the goods receive a severe washing, while the second contains a weak solution of acid, which neutralizes any alkali which might remain in the fabric, while the third tank provides a final washing-off. After each tank the cloth is subjected to a heavy nip by means of iron and rubber rollers.

If it is necessary to dry the goods after mercerization, the fabric is passed from the washing-off machine to a cylinder drying machine. It is claimed that mercerized cotton in a dry condition possesses less affinity for dyestuffs than when dyed without previously drying. During the dyeing of mercerized material, dark stains may be produced by applying hygrosopic substances to the material in parts. Hence it is evident, in order to obtain the full benefit of increased affinity for dyestuffs, that the goods should be dyed immediately after mercerization, or at any rate before drying.—Chemicals.

Swiss Rayon Industry.

The manufacture of rayon is an important industrial feature of the Lucerne district, the only factory in Switzerland being located near Lucerne. This company employs about 2,000 hands. Trade in this commodity was brisk during the second quarter of 1925 as far as the domestic demand was concerned but the export market was quiet. Shipments to the United States were relatively small in value, amounting to $13,970, which consisted largely of artificial horsehair.

Langley, S. C.—At a meeting of the board of directors of the mills of W. H. Langley & Co., held last Tuesday in New York, W. C. Langley was elected chairman of the board. George E. Spofford, formerly vice-president, was elected president, to succeed Mr. Langley. The mills of W. H. Langley & Co. are: The Langley Mills, the Aiken Mills, the Seminole Mills, and Anderson Cotton Mills.

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are in daily use in hundreds of textile mills.

WHY?

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Connect a PURO to your supply, then proceed to forget about it. Years later PURO will be just as satisfactory as it was the day you installed it.

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Specializing in Selling Cotton Mill Products
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55 Leonard Street New York
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Sheetings, Combed Peeler Yarns

Cotton Goods

New York.—The cotton goods markets were slightly less active last week, but prices remained very firm. Print cloths and sheetings sold at full prices for prompt delivery and many mills making these goods are well sold ahead for the next two months. Wide sheetings were active and prices were advanced from a basis of 58 cents to 63 cents for 10-4 goods. Colored cottons sold steadily and are now in a much stronger position due to a reduction of mill stocks and large recent sales. Denims, chambrays, cheviots, stripes, tickings and plaids are now being held very firmly at quoted prices. Prices on some lines of printed percales were advanced a cent a yard.

Sales of wide flannels, cotton blankets and domets were more active and the demand for ginghams in small lots was considerably better. There was a steady call for rayon mixtures and a large business in these goods was reported.

Only a moderate amount of business was done in duck. The demand recently has been for the most part for enameling duck which has sold in fair quantities to the automobile and rubber trades. There was not much activity in army duck. Tent and swing manufacturers have not covered their requirements and are expected to be in the markets within a short time.

Tire fabric was quiet as far as nearby deliveries are concerned. prices were somewhat firmer and consumers are becoming more encouraged to cover a larger percentage of their requirements.

The 112x60s all combed broadcloth sold on contract at 18 cents, with deliveries to begin early in November. A little contract business was placed for 110x64s carded broadcloth at 15 cents beginning November and few more November contracts goods available, the next best being shipments to commence December. Further little lots of the construction came out at 15 cents.

The market for venetians has continued quiet. with various producers claiming they have done no business in the style for a number of weeks. They are disposed to speculate as to what became of the former reliable demand for such goods. Domestic and English mills have relatively few of them on their looms.

The market of 38-inch 72x100s combed pongees was 17 cents and 15 cents for 34-inch. A number of small combed lawn sales were made at prevailing prices. In the silk and cotton sections there were efforts made to pick up spots of 96x104s, two-end Canton, with 42½ cents the price and not enough of them found to go around. The market for combed and carded warp sateens was quiet, with 96x50s held for 12 cents South and 12¼ cents East. Spots continued to be lacking in supply.

An appreciable increase in the volume of sales last week in the Fall River print cloth market, compared with that of the week before, indicates that buyers have recovered from the Government condition report. Sales for this week are estimated at 60,000 pieces, consisting largely of 36-inch low counts, and some twills.

The tobacco and surgical trades have been fairly active during the week and some contracts have been placed to run through December. Sateens are very scarce in this market, although the call has been quite light. There is also a dearth of 36-inch goods, and with curtailment about the same very little relief from this situation can be expected within the near future.

Cotton goods prices were as follows:

Print cloths, 28-in.. 64x64s	7⅜
Print cloths, 28-in., 64x60s	7⅛
Print cloths, 27-in., 64x64s	6⅞
Gray goods, 38½-in., 64x64s	10½
Gray goods, 36-in., 68x72s	11
Gray goods, 39-in., 80x80s	13
Brown sheetings, 4-yard	13¾
Brown sheetings, 4-yard	11⅛
Brown sheetings, stand.	14¾
Ticking, 8-ounce	23½
Denims	19
Staple ginghams, 27-in.	11½
Kid finished cambrics	9½a10½
Dress ginghams	13½a17½

Czechoslovak Textile Mills Expand.

Several Bohemian textile mills are negotiating for loans with which to expand their plants, according to the local press, Commercial Attache J. P. Hodgson, Prague, informs the Department of Commerce. The mills are particularly of cheap goods. Three of the mills are said to have been offered loans from the Netherlands amounting to 36,000,000 Czechoslovak crowns (about $954,000), although the terms have not yet been agreed upon. This reported negotation for a Dutch loan was confirmed by an official of the Czechoslovak Manufacturers Association. Rumors that textile firms were also seeking loans from Swiss and English sources, however, could not be confirmed.

Southeastern Selling Agency
LESSER-GOLDMAN COTTON COMPANY
OF ST. LOUIS, MO.
P. H. PARTRIDGE, Agent, Charlotte, N. C.
Extra staples, and good 1 1-16 and 1⅛ cotton from Arkansas,
Oklahoma, and Texas, and Memphis territory

The Yarn Market

Philadelphia, Pa.—Lower cotton prices towards the end of the week had no effect on yarn prices. Buying interest was concerned only with small spot lots, but the total business put through for the week reached a very substantial total. No large future business was reported. Spinners continued very firm in their prices despite the lower cotton market. The power situation in the Piedmont became more serious when it announced that the mills will now have to curtail two and a half days per week. The lower production of yarns is expected to keep prices very firm, especially in view of the fact that yarn stocks are very small.

There was some inquiry for combed yarns for spot delivery, but spot lots were reported very scarce. Combed and mercerized prices continued very firm.

Some of the large knitters continued to inquire for sizable quantities for future delivery, but so far as could be ascertained they were not able to place the business at the prices offered. Sales of 8s three-ply tinged insulating yarns were made on a basis of 35½ cents, while 40s two-ply carded tubes, insulating quality, were sold on a basis of 57½ cents. On 12s two-ply carded tubes sales were made at 39 cents. About 12,000 pounds of 16s two-ply carded tubes were sold on a basis of 41½ cents. Good quality 13s single tying-in frame cones were sold at 45 cents. The tone was steady during the week and the price situation was practically unchanged in all quarters.

Southern Two-Ply Chain Warps..

8s	39	a—
10s	40	a—
12s	41	a—
16s	42	a—
20s	43½	a44
24s	46	a47
26s	47	a48
30s	49	a50
40s	59	a60
50s	69	a70

Southern Two-Ply Skeins

8s	38½	a39
10s	39½	a—
12s	40	a—
14s	41	a—
16s	42	a—
20s	43	a—
24s	46	a—
26s	47	a—
30s	48	a49
36s	56	a—
40s	59	a60
40s ex.	60	a61
50s	68	a70
60s	75	a—
Tinged Carpet 3 and 4-ply	37	a—
White Carpet 3 and 4-ply	38	a—

Part Waste Insulated Yarn.

6s, 1-ply	34½	a—
8s, 2 3, and 4-ply	35½	a36
10s, 1-ply and 3-ply	37	a—
12s, 2-ply	38	a—
16s, 2-ply	39½	a40
20s, 2-ply	41½	a42
26s, 2-ply	46	a—
30s, 2-ply	47	a—

Duck Yarn—3, 4 and 5-ply.

8s	39	a—
10s	40	a—
12s	40½	a—
16s	42	a—
20s	43	a—

Southern Single Chain Warps.

10s	40	a—
12s	40	a—
14s	41	a—
16s	42	a—
20s	43	a—
24s	45	a—
26s	46	a—
30s	47	a—
40s	58	a—

Soutnern Single Skeins.

6s	38½	a—
8s	39	a—
10s	39½	a—
12s	40	a—
14s	40½	a—
16s	41½	a—
20s	42	a—
22s	43	a44
24s	45	a—
26s	45	a46
30s	46	a47

Southern Frame Cones.

8s	38	a38½
10s	38½	a39
12s	39½	a40
14s	40	a41
16s	41	a41½
18s	41½	a42
20s	42	a43
22s	43	a—
24s	43½	a44
26s	44½	a45
28s	45½	a46
30s Tying in	44½	a45
30s	48	a49
40s	56	a57

Southern Combed Peeler Skeins, Etc.—Two-Ply

16s	56	a60
20s	58	a62
30s	65	a67
36s	70	a75
40s	75	a80
50s	85	a—
60s	87½	a90
70s	1 02½	a—
80s	1 12½	a1 15

Southern Combed Peeler Cones.

10s	48	a49
12s	49	a50
14s	49½	a50½
16s	52½	a—
18s	51	a52
20s	52	a—
22s	53	a—
24s	56	a—
26s	56½	a—
28s	57	a—
30s	60	a—
32s	62	a—
34s	65	a—
36s	67	a—
38s	69	a—
40s	70	a—
50s	75	a—
60s	87½	a90
70s	97½	a—
80s	1 10	a—

Eastern Carded Peeler Thread—Twist Skeins—Two-Ply.

20s	50	a—
22s	51	a—
24s	56	a—
30s	59	a—
36s	63	a—
40s	65	a—
45s	70	a—
50s	75	a—

Eastern Carded Cones.

10s	41	a—
12s	42	a—
14s	43	a—
20s	47	a—
22s	44	a—
26s	51	a—
28s	53	a—
30s	55	a—

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$50.00 Reward by Franklin County, Ga., and **$50.00 Reward** by State Prison Com. of Ga. is offered for the apprehension of Paul Waymon Vaughn, white, age about 32, height 5 ft. 6½ in., weight 150 pounds, light brown hair, brown eyes, wears No. 8 shoe, very red complexion. Sent up from Stephens County, Ga., for murder, killing his wife. Escaped from Franklin County, Ga., convict camp Aug. 31, 1925. Has worked in cotton mills. Notify J. B. McEntire, Supt. and Warden, Franklin County, Carnesville, Ga.

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1 36" Kitson hopper feeder.
1 36" Kitson condenser.
1 60" Kitson willower.
1 40" Kitson 2 beater breaker lapper.
1 40" Kitson intermediate lapper
2 40" Kitson finisher lappers.
17 40" Whitin cards, 12" coilers.
32 del Whitin drawing, 12" coilers.
3 11x5½ Providence slubbers, 60 spindles each.
5 8x4 Providence intermediates, 96 spindles each.
6 7x3½ Providence speeders, 120 spindles each.
6860 spindle Whitin spinning, 204 and 208 spindles each.
2 4x5 E. & B. spoolers, 120 spindles each.
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WANT position as manager or secretary of 5,000 to 10,000 spindle mill Prefer Alabama, or state west of Alabama. Am well qualified and can give excellent references. No. 4687

WANT postion as second hand in carding in large room Have had 20 years experience Married, age 32 sober, musician. Prefer South Carolina. Good worker, know colored and plain work. No. 4688.

WANT position as overseer spinning or carding and spinning. Experienced man who can deliver the goods. Good references as to character and ability. No. 4689

WANT position as overseer weaving, the Carolinas or Georgia. Now employed, but wish to change Experienced on plain and fancy goods. Excellent references. No. 4690.

WANT position as overseer cloth room. Sixteen years experience Now employed as overseer. Have family. Good references. No... 4691.

WANT position as overseer spinning. 20 years experience on all numbers and colors. Can come on short notice. First class references. No. 4692.

WANT position as superintendent of weave mill Long experience in good mills. Understand economical production of quality goods. Prefer mill in the Carolinas, Georgia or Alabama. Special experience on ducks and chambrays. No. 4693.

WANT position as overseer weaving on plain cam weave Have been overseer for four years Married good character, good references. No. 4694.

WANT place as overhauler in card room. Can give excellent references from mills in which I have done this work and can give satisfaction in every respect. No. 4695

WANT position as overseer carding or assistant superintendent. Prefer mill on white goods Age 26, single, 9 years experience Now overseer and night superintendent. No. 4696.

WANT position as master mechanic. Now employed, good reasons for wishing to change Large job preferred. Good references. No. 4697.

WANT position as overseer spinning, or spooling, winding and twisting. Now employed but wish larger place. Long experience and good references. No. 4698.

WANT position as superintendent of medium size mill or overseer carding or spinning in larger plant. Now employed as assistant superintendent. Good references. No. 4699.

WANT position as superintendent of yarn mill. Long practical experience as superintendent and overseer and have excellent record. No. 4700.

WANT position as overseer carding or would take overseer's place in large place in large mill. Experienced man of character and ability who can give satisfaction. No. 4701.

WANT position as superintendent. Experienced on both colored and white goods, also fancies. Fine references. No. 4702.

WANT position as carder, spinner,. or twister room man. Good habits, long experience and references to show character and ability. No. 4703.

WANT position as master mechanic. Number of years experience in mill steam plant and machine shop. Have first grade Fulton County (Ga.) engineer's license. No. 4704.

WANT position as carder or spinner. Have long experience in number of first class mills and can give excellent references. No. 4705.

WANT position as dyer, bleacher or in charge of mercerization. Have had 15 years experience in warp and skein work in some of the finest mills in the country. Will accept place either as superintendent or overseer. No. 4706.

WANT position as superintendent of yarn mill or carder and spinner. Experienced man with long record of successful service. Good references. No. 4707.

WANT position as overseer weaving. Now employed as overseer. Have been with present mill 19 years, 5 years as overseer. Have had 23 years experience in weaving. Want larger and better paying job. No. 4708.

WANT position as overseer weaving, slashing or beaming. Now employed but wish larger place. Will be glad to submit references to mill needing high class man. No. 4709.

WANT positon as overseer weaving or would take second hand in large mill Eighteen years experience as overseer. Now employed but have good reasons for wishing to change. Good references. No. 47010.

WANT position as overseer spinning. Age 34, married, 15 years experience. Can get real results. References. No. 4711.

WANT position as overseer spinning. Now employed, been on present job several years. Would consider permanent job as spindle plumber in large mill. Age 33, married, excellent references. No. 4712.

WANT position as superintendent of yarn mill or overseer carding or spinning. Long experience in good mills, good habits. First class references. No. 4713.

WANT position as superintendent of medium size mill at good pay. Have had 20 years in the mill, unusually good experience in weaving. Now general overseer in large paint. Good references. No. 4714.

WANT position as overseer weaving. Experienced on wide range of goods and can get results. Now employed but can come on short notice. No. 4715.

WANT position as overseer carding or spinning. Nine years as overseer in these departments. Age 37. Best of references. No. 4716.

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WANT position as master mechanic. Experienced on both steam and electric work, good machinist and can handle mill machine shop in first class manner. Excellent references. No. 4718.

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Best, Edward H. & Co.

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Woonsocket Machine & Press Co., Inc.
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Saddles—
Dixon Lubricating Saddle Co.

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Sanitary Fountains—
——See Drinking Fountains.

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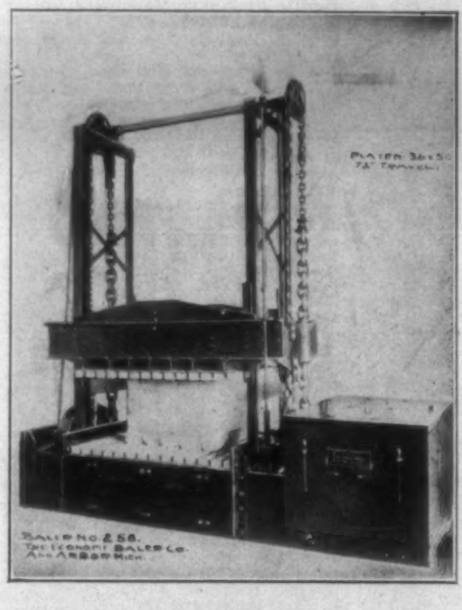

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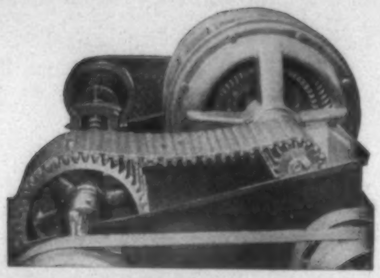

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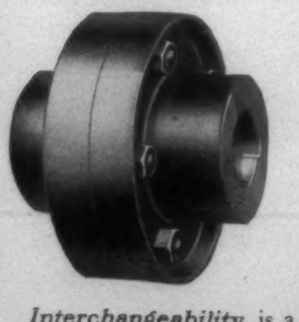

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